SAFETY DATA SHEET
BIO-SANITIZER® DISINFECTING TABLETS

I. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Bio-Sanitizer®

CHEMICAL NAME
Calcium Hypochlorite, Hydrated, Tablets

CHEMICAL ABSTRACT SERVICE NO.
CAS #7778-54-3

CHEMICAL FAMILY
Hypochlorite

FORMULA
Ca(OCl)₂ * H₂O

SUPPLIER
Norweco, Inc.

EMERGENCY TELEPHONE NUMBER
(800) 424-9300

TECHNICAL PHONE NUMBER
(800) NORWECO, (800) 667-9326

II. HAZARDOUS IDENTIFICATION

EMERGENCY OVERVIEW
DANGER!

STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. DO NOT MIX WITH OTHER CHEMICALS, INCLUDING ANY OTHER POOL CHEMICALS OF ANY KIND. MIXING WITH OTHER CHEMICALS COULD CAUSE A FIRE OR EXPLOSION. Contamination with moisture, acids, organic matter, other chemicals (including, but not limited to cleaning chemicals and other pool chemicals), petroleum or paint products or other easily combustible materials may start a chemical reaction with generation of heat, liberation of hazardous gases and possible violent reaction leading to fire or explosion. ALWAYS ADD PRODUCT TO LARGE QUANTITIES OF WATER TO FULLY DISSOLVE PRODUCT. DO NOT POUR WATER INTO PRODUCT; ALWAYS ADD PRODUCT TO WATER. DO NOT USE WITH STABILIZED CHLORINE OR BROMINE TABLET CHEMICAL FEEDERS. Do not add this product to any dispensing device containing remnants of any other product or pool chemical.

CAUSES EYE AND SKIN BURNS. CAUSES RESPIRATORY TRACT IRRITATION. HARMFUL IF INHALED. HARMFUL OR FATAL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Very toxic to aquatic organisms.

Keep away from heat, sparks, flames, direct sunlight, and other sources of heat, including lighted tobacco products. Keep away from incompatible materials and combustible materials. Do not swallow. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container closed. If product becomes contaminated or decomposes do not reseal container. If possible isolate container in open air or well-ventilated area. Wash thoroughly after handling. Keep out of waterways.

POTENTIAL ACUTE HEALTH EFFECTS

INHALATION
Harmful if inhaled. Severely irritating to the respiratory system. Can irritate eyes, nose, mouth and throat.

INGESTION
Harmful or fatal if swallowed. May cause burns to mouth, throat and stomach.

SKIN
Corrosive to the skin. Causes burns. Harmful if contact with skin.

OVER EXPOSURE SIGNS/SYMPTOMS

INHALATION
Adverse symptoms may include the following:
- respiratory tract irritation
- coughing
- breathing difficulty or shortness of breath
- pulmonary edema

INGESTION
Adverse symptoms may include the following:
- stomach pains
- nausea or vomiting
- gastric perforation

SKIN
Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur

EYES
Adverse symptoms may include the following:
- pain
- watering
- redness
- cornea opacity
- Direct contact with the eyes can cause irreversible damage, including blindness.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE
Pre-existing disorders involving any target organs mentioned in this SDS as being at risk may be aggravated by overexposure to this product.

This Safety Data Sheet has been prepared in accordance with Canada’s Workplace Hazardous Materials Information System (WHMIS) and the OSHA Hazard Communication Standard (29 CFR 1910.1200)

III. CONSUMPTION/INFORMATION ON INGREDIENTS

CALCIUM HYPOCHLORITE (70% Available Chlorine) 73%
INERT INGREDIENTS (Includes 5.5-10% Moisture) 27%

THERE ARE NO ADDITIONAL INGREDIENTS PRESENT, WITHIN THE CURRENT KNOWLEDGE OF THE SUPPLIER AND IN THE CONCENTRATIONS APPLICABLE THAT ARE CLASSIFIED AS HAZARDOUS TO HEALTH OR THE ENVIRONMENT AND HENCE REQUIRE REPORTING IN THIS SECTION.

IV. FIRST AID PROCEDURES

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

EYE CONTACT
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Continue rinsing until medical attention can be obtained.

SKIN CONTACT
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention.

INHALATION
Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention immediately.

INGESTION
If swallowed, seek medical advice immediately and show this Safety Data Sheet, container or label. Keep person warm and at rest. Do not induce vomiting. Get medical attention immediately.

NOTE TO PHYSICIAN
No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
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V. FIRE-FIGHTING MEASURES

FLAMMABILITY OF THE PRODUCT
Product is not known to be flammable, combustible, or pyrophoric. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. This product is a strong oxidizer which is capable of intensifying a fire once started. Container may rupture.

EXTINGUISHING MEDIA

SUITABLE

Drench with large quantities of water only.

NOT SUITABLE

Do not use dry chemicals or foams. Product supplies own oxygen, therefore attempts to smother fire with a wet blanket, carbon dioxide, dry chemical extinguisher or other means are not effective. Product has the potential to cause a violent reaction if dry chemical fire extinguishers are used.

SPECIAL EXPOSURE HAZARDS
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Emits toxic fumes under fire conditions. Chlorine gas may be generated. This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

HAZARDOUS COMBUSTION PRODUCTS
Decomposition products may include the following materials:
- carbon oxides
- halogenated compounds
- metal oxide/oxides

SPECIAL PROTECTIVE EQUIPMENT
FOR FIREFIGHTERS
Firefighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

VI. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

ENVIRONMENTAL PRECAUTIONS
Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

LARGE SPILL
Use extreme caution in handling spilled material. Use spark-proof tools and explosion-proof equipment. Do not mix this product with any other chemicals, including any other pool chemicals of any kind, such as other disinfection or "shock" pool products. Contamination with moisture, acids, organic matter, other chemicals (including, but not limited to cleaning chemicals and other pool chemicals), petroleum or paint products or other easily combustible materials may start a chemical reaction with generation of heat, liberation of hazardous gases and possible violent reaction leading to fire or explosion. If fire or decomposition occurs in area of spill, immediately douse with plenty of water. Otherwise, sweep up all visible material using a clean (new, if possible), dry shovel and broom and immediately dissolve material in a water-filled container. Spilled material that has been swept up and dissolved in water should be used immediately in the normal application for which this product is being consumed. Prevent entry into sewers, water courses, basements or confined areas. Dispose of via a licensed waste disposal contractor.

SMALL SPILL
Use extreme caution in handling spilled material. Use spark-proof tools and explosion-proof equipment. Do not mix this product with any other chemicals, including any other pool chemicals of any kind, such as other disinfection or "shock" pool products. Contamination with moisture, acids, organic matter, other chemicals (including, but not limited to cleaning chemicals and other pool chemicals), petroleum or paint products or other easily combustible materials may start a chemical reaction with generation of heat, liberation of hazardous gases and possible violent reaction leading to fire or explosion. If fire or decomposition occurs in area of spill, immediately douse with plenty of water. Otherwise, sweep up all visible material using a clean (new, if possible), dry shovel and broom and immediately dissolve material in a water-filled container. Spilled material that has been swept up and dissolved in water should be used immediately in the normal application for which this product is being consumed. Prevent entry into sewers, water courses, basements or confined areas.

REFERENCE TO OTHER SECTIONS
See Section I for emergency contact information.
See Section VIII for information on appropriate personal protective equipment.
See Section XIII for additional waste treatment information.

VII. HANDLING AND STORAGE

HANDLING
Use extreme caution in handling spilled material. Put on appropriate personal protective equipment (see Section VIII). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Do not swallow. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container with the lid securely closed. Keep away from heat, sparks, flames, direct sunlight, and other sources of heat, including lighted tobacco products. Keep away from combustible material. Add product only to water. Never add water to this product. Always add the product to large quantities of water. Do not mix this product with any other chemicals, including any other pool chemicals of any kind, such as other disinfection or "shock" pool products. Fire may result if contaminated with acids, organic materials and other easily combustible materials such as oil, kerosene, gasoline, paint products, wood and paper. Use only clean, dry utensils made of metal or plastic. Do not add this product to any dispensing device containing remnants of any other products or pool chemicals. Such use may cause violent reaction leading to fire or explosion. Empty containers retain product residue and can be hazardous. Do not reuse container. Residual material remaining in empty container can react to cause fire. Thoroughly flush empty container with water then destroy by placing in trash collection.

STORAGE
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section X) and food and drink. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 400, Hazardous Material Code for further information. (Please note that NFPA 400, Hazardous Materials Code recently replaced NFPA 430, Code for Storage of Liquid and Solid Oxidizers.) Keep container closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. If product becomes contaminated or decomposes do not reseal container. If possible isolate container in open air or well-ventilated area. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Do not contaminate water, food, or feed by storage or disposal of this product.

VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION

CONSULT LOCAL AUTHORITIES FOR ACCEPTABLE EXPOSURE LIMITS

RECOMMENDED MONITORING PROCEDURES
If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

ENGINEERING MEASURES
Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineer controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Engineering controls may be required to control the primary or secondary risks associated with this product. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the worklocation.

HYGIENE MEASURES
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the worklocation.

PERSONAL PROTECTION EYES
Chemical splash goggles and face shield.

HANDS
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION (continued)

GLOVES
Nitrile, neoprene, butyl rubber.

RESPIRATORY
If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SKIN
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

ENVIRONMENTAL EXPOSURE CONTROLS
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of the environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

IX. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE
Solid

FLASH POINT
Closed cup: Not applicable

DECOMPOSITION TEMPERATURE
170 TO 180°C (338 to 356°F)

MATERIAL SUPPORTS COMBUSTION
Yes

COLOR
White

ODOOR
CHLORINE (Slight)

pH
Alkaline

BOILING/CONDENSATION POINT
Decomposes @ 170-180°C (338 to 356°F)

MELTING/FREEZING POINT
Not available

SPECIFIC GRAVITY
Not available

DENSITY (lbs/gal)
Not available

BULK DENSITY (G/CM³)
1.07 to 1.4 (67-71 lbs/ft³)

VAPOR PRESSURE
Not available

VAPOR DENSITY
Not available

VOLATILITY
0% (w/w)

EVAPORATION RATE
Not available

VISCOSITY
Not applicable

SOLUBILITY
Soluble in the following materials: cold water

WATER SOLUBILITY AT ROOM TEMPERATURE
217 g/l (27°C)

PARTITION COEFFICIENT NOCTANOL/WATER
Not available

% SOLID (W/W)
100

X. STABILITY AND REACTIVITY

STABILITY
The product may not be stable under certain conditions of storage or use. See “Possibility of Hazardous Reactions” for further information.

CONDITIONS TO AVOID
Stable under recommended storage and handling conditions (see Section VII). Heating may cause a fire or explosion. Excessive heat will cause decomposition resulting in the release of oxygen and chlorine gas.

MATERIALS TO AVOID
Highly reactive or incompatible with the following materials: moisture, combustible materials, organic materials, metals, acids, alkalis, oxidizing materials, reducing materials, ammonia, petroleum products, paint products, wood, paper and pool chemicals. Acid or ammonia contamination will release toxic gases.

HAZARDOUS DECOMPOSITION PRODUCTS
Product slowly releases chlorine gas.

POSSIBILITY OF HAZARDOUS REACTIONS
Hazardous reactions or instability may occur under certain conditions of storage or use.

Conditions may include the following:
- contact with combustible materials
- contact with acids/ammonia

Reactions may include the following:
- risk of causing or intensifying fire
- liberation of toxic gas

XI. TOXICOLOGICAL INFORMATION

PERMISSIBLE
No permissible exposure limits have been established by OSHA.

ACUTE
INHALATION
Inhalation of this material is irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema which can result in shortness of breath, wheezing, choking, chest pain and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage. Chronic (repeated) inhalation exposure may cause impairment of lung function and permanent lung damage.

EYE/SKIN
Severe irritation and/or burns can occur following eye exposure. Severe irritation may result in burns, swelling, tearing, retraction of the eyelids, chemosis, conjunctival hyperemia, corneal lesions and edema. Chronic exposure may result in keratitis, conjunctivitis, cataract formation, corneal opacification and other eye disorders.

INGESTION
Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration.

CHRONIC
There are no known or reported effects from chronic exposure.

XII. ECOLOGICAL INFORMATION

OVERVIEW
Highly toxic to fish and other aquatic organisms

ECOLOGICAL TOXICITY VALUES FOR CALCIUM HYPOCHLORITE

BLUEGILL
Nominal, static - 96 h LC50 = 0.008 mg/l

RAINBOW TROUT (SALMO GAIRDNERI)
Nominal, static - 96 h LC50 = 0.16 mg/l

DAPHNIA MAGNA
Nominal, static - 48 h LC50 = 0.11 mg/l

BOBWHITE QUAIL
Dietary LC50 > 5,000 ppm

MALLARD DUCKLINGS
Oral LD50 = 3,474 mg/kg

BOBWHITE QUAIL
Oral LD50 = 3,474 mg/kg

ECOLOGICAL TOXICITY VALUES FOR CALCIUM CHLORIDE

BLUEGILL
Nominal, static - 96 h LC50 = 10,650 mg/l

MOSQUITO FISH
Nominal, static - 96 h LC50 = 13,400 mg/l

FATHEAD MINNOW
Nominal, static - 96 h LC50 = 4,630 mg/l

(PIMEPHALES PROMELAS)
Nominal, static - 48 h LC50 = 2,770 mg/l

DAPHNIA MAGNA
Nominal, static - 96 h LC50 = 13,400 mg/l

DAPHNIA MAGNA
Nominal, static - 48 h LC50 = 2,770 mg/l
XII. ECOLOGICAL INFORMATION (continued)

CERIODAPHNIA DUBIA Nominal, static - 48 h LC50 = 1,830 mg/l
NITZSCHEA LINEARIS (DIATOM) Nominal, static - 5 day LC50 = 3,130 mg/l

XIII. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Spilled material that has been swept up and dissolved in water should be used immediately in the normal application for which this product is being consumed. If this is not possible, material may be neutralized. Please contact Norweco, Inc. for guidance. Note: Only properly neutralized material should be flushed to sewer. Unneutralized material can cause environmental damage to receiving water or can interfere with treatment plant operation. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. Empty containers retain product residue and can be hazardous. Residual material remaining in empty container can react to cause fire. Thoroughly flush empty container with water then destroy by placing in trash collection. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional/local authority requirements. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.

DISPOSAL SHOULD BE IN ACCORDANCE WITH APPLICABLE NATIONAL, REGIONAL, STATE AND LOCAL LAWS AND REGULATIONS. REFER TO SECTION VII: HANDLING AND STORAGE, SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION FOR ADDITIONAL HANDLING INFORMATION AND PROTECTION OF EMPLOYEES AND SECTION VI: ACCIDENTAL RELEASE MEASURES.

XIV. TRANSPORTATION INFORMATION

IDENTIFICATION NUMBER UN 2880
PACKING GROUP I I
REPORTABLE QUANTITY 10 pound/4.5 Kg
HMIS/NFPA-RATING 3/0/1
I.M.O. DESCRIPTION Calcium Hypochlorite
Hydrated, Class 5.1, UN 2880
Packing Group I I, RO 10, IMDG
Code Page 5138
U.S. DOT SHIPPING NAME Calcium Hypochlorite, Hydrated
U.S. DOT HAZARD CLASS 5.1 Oxidizer

XV. REGULATORY INFORMATION

UNITED STATES INVENTORY (TSCA 8b) All components are listed or exempted
AUSTRALIA INVENTORY (AICS) All components are listed or exempted
CANADA INVENTORY (DSL) All components are listed or exempted
CHINA INVENTORY (IECSC) All components are listed or exempted
EUROPE INVENTORY (REACH) Please contact your supplier for information on the inventory status of this material
JAPAN INVENTORY (ENCS) All components are listed or exempted
KOREA INVENTORY (KECI) All components are listed or exempted
NEW ZEALAND (NZLoC) All components are listed or exempted
PHILIPPINES INVENTORY (PICCS) All components are listed or exempted

UNITED STATES EPA ID NO. - PESTICIDE Please contact your supplier to get the information
SARA 302/304 Hazardous substances:
pentasodium triphosphate 5000 lbs (2270 kg)
calcium hypochlorite 10 lbs (4.54 kg)

CHEMICAL NAME CAS# ACUTE CHRONIC FIRE REACTIVE PRESSURE
CALCIUM HYPOCHLORITE 7778-54-3 Y N N Y N
SODIUM CHLORIDE 7647-14-5 N N N N N
CALCIUM DIHYDROXIDE 1305-62-0 Y N N N N
CALCIUM CARBONATE 471-34-1 N N N N N
CALCIUM CHLORATE 10137-74-3 Y N N Y N
PRODUCT AS SUPPLIED Y N N Y N

CALIFORNIA PROP. NOT APPLICABLE
CANADA WHMIS (CANADA) Class E Corrosive solid
MEXICO CLASSIFICATION FLAMMABILITY 0 HEALTH 3 REACTIVITY 2

XVI. OTHER INFORMATION

OTHER SPECIAL NSF Standard 60 Drinking Water Treatment Chemicals - Some calcium hypochlorite brands have Health Effect Listing and are certified for maximum use of 14-15 mg/l.

This product is registered with USEPA as a pesticide in all 50 states.

DATE OF ISSUE January 21, 2015