



BIO-SANITIZER®

DISINFECTING TABLETS

GENERAL SPECIFICATIONS

Bio-Sanitizer disinfecting tablets shall be formulated and produced to insure effective and dependable disinfection for potable water, wastewater, process water treatment systems and other applications where a predictable long-term source of chlorine is desirable. Bio-Sanitizer tablets shall dissolve slowly and evenly, providing effective bacteria reduction while minimizing chemical consumption. The tablets shall be 2⁵/₈" diameter, compressed to 1³/₁₆" thickness with an approximate weight of 5 oz. and incorporate beveled edges to minimize operator maintenance. Ultraviolet systems provide limited treatment during operational upsets and chlorine gas systems create significant safety concerns and therefore shall not be considered for this application.

TABLET PROPERTIES AND USAGE

Bio-Sanitizer disinfecting tablets shall be registered with the USEPA, all applicable State Departments of Agriculture and the Ministry of the Environment as a microbiocide disinfectant. The tablets shall have an active ingredient of 73% calcium hypochlorite and contain a minimum of 70% available chlorine. When used as directed, Bio-Sanitizer disinfecting tablets shall provide a more economical, safe and convenient method of disinfection than gas or liquid disinfecting systems. The consistent dissolve rate of Bio-Sanitizer disinfecting tablets shall generally lower overall chemical use and provide for better control over residual chlorine. Therefore, other tablets of similar composition shall not be considered for this application.

PRODUCT APPLICATION

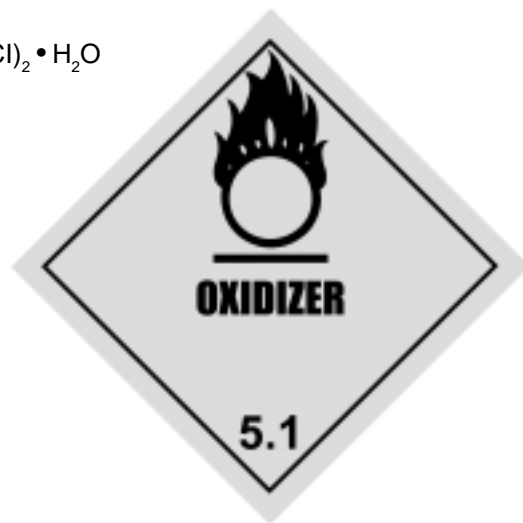
The 2⁵/₈" diameter by 1³/₁₆" thick Bio-Sanitizer tablets shall be utilized for the disinfection of wastewater treatment plant effluent, potable water and process water. The tablets shall maintain a consistent chemical application rate at intermittent peak flow factors as high as four and shall provide reliable effluent disinfection even when the significant runoff period is six hours. Bio-Sanitizer tablets shall effectively disinfect typical water or wastewater flows without releasing unnecessary quantities of calcium hypochlorite into the environment. The following is a list of common applications where the tablets may be utilized: residential wastewater treatment plants, municipal wastewater plants, septic tanks – sand filters, package wastewater treatment systems, well water systems, marine sanitation equipment, spray irrigation systems, municipal water plants and water towers.

DESIGN DATA

Tablet Size	2 ⁵ / ₈ " diameter, 1 ³ / ₁₆ " thick
Approximate Tablet Weight	5 oz. (140 grams)
Active Ingredient	73% Calcium Hypochlorite – Ca (OCI) ₂ • H ₂ O
Minimum Available Chlorine	70%
Inert Ingredient Content	27%
EPA Registration	63243-1
Appearance Characteristics	White Tablet with Chlorine Odor
Special Design Features	Beveled Edges

SPECIAL INSTRUCTIONS

Bio-Sanitizer disinfecting tablets are a strong oxidizing agent and highly corrosive. Contact with other chlorine compounds, oil or petroleum products is extremely dangerous – fire or explosion could result. Improper use of this product may cause personal injury or property damage. Tablets may be fatal if swallowed and tablet dust is irritating to the eyes, nose and throat. Keep out of the reach of children. Store only in the original container in a cool, dry, well ventilated area. It is a violation of Federal Law to use Bio-Sanitizer disinfecting tablets in a manner inconsistent with its labeling. Read the product container label and Bio-Sanitizer disinfecting tablet Safety and Tablet Properties and Usage instructions before use. Always wear rubber gloves and either safety goggles or a face shield when handling Bio-Sanitizer tablets.



CALCIUM HYPOCHLORITE,
HYDRATED MIXTURES
UN 2880

PRODUCT STORAGE

Bio-Sanitizer disinfecting tablets are a strong and highly corrosive oxidizing agent. Tablets should be stored in a cool, dry, well ventilated area, away from heat or flame. Stock should be rotated on a first-in, first-out basis. Store Bio-Sanitizer disinfecting tablets in their original container with the lid tightly closed. Store tablets away from combustible materials such as paper, petroleum products, chemicals, rags or cardboard. In case of contamination or decomposition, do not reseal container and notify fire department immediately. If possible, isolate container in open air or a well ventilated area. Flood tablets and container with large volumes of water to dissolve all materials, then discard container. Do not reuse the empty container.

SAFETY INSTRUCTIONS

Before handling Bio-Sanitizer tablets, carefully read the product container label and the Product Storage, Tablet Handling, Caution and First Aid sections of these instructions. Do not add Bio-Sanitizer tablets to a feed tube containing the remnants of any other product, particularly oil and petroleum products or swimming pool chlorine – fire or explosion could result. Do not contaminate food or feed during the use, storage or disposal of Bio-Sanitizer tablets or the cleaning of chemical feed equipment. Always wear rubber gloves and either safety goggles or a face shield when handling Bio-Sanitizer tablets or working with any tablet chlorinator or chemical feed tube. Avoid contact with skin, eyes, mouth, respiratory system or clothing. Keep only in tightly closed original container. Store only in a cool, dry, well ventilated area. Avoid moisture contamination.

TABLET HANDLING

It is a violation of Federal Law to use Bio-Sanitizer tablets in a manner inconsistent with the container label. It is a violation of Federal Law to sell the tablets in a package other than the original container and in the quantity shown on the label. Read the entire Bio-Sanitizer tablet container label and these instructions carefully before handling this product. Mix only with water. Use only clean, dry utensils made of metal or plastic. Do not add Bio-Sanitizer tablets to any dispensing device containing remnants of any other product. Such use may cause a violent reaction leading to fire, explosion and/or the release of toxic gas.

FEED TUBE LOADING INSTRUCTIONS

1. Remove feed tube from dispenser housing.
2. Remove protective cap from feed tube; place cap in a clean, dry area.
3. Remove any tablet residue by gently tapping feed tube on concrete or stone surface. If tablets other than Bio-Sanitizer have been used, rinse tube and cap with fresh water until clean and allow to dry before proceeding.
4. Hold tube, slotted end up, at a 45° angle and slide Bio-Sanitizer disinfecting tablets into the tube, one tablet at a time.
5. Insure that all tablets lie flat, on top of one another, in the feed tube.
6. Use your gloved hand to retain tablets inside the open end of the inverted tube while filling.
7. Carefully return tube to upright position.
8. Replace the cap securely.
9. Place tube back into housing, slotted end down.
10. Be sure feed tube is fully engaged and rests evenly on the floor of the housing.
11. If the tablet feeder incorporates multiple feed tubes, consult the manufacturer's instructions to determine the correct number of tubes to be filled and their placement.



CAUTION

Bio-Sanitizer disinfecting tablets are highly corrosive. Contact with other chlorine products or reducing agents, such as pool chemicals or Bio-Neutralizer dechlorination tablets, is extremely dangerous – fire or explosion could result. Keep out of the reach of children. Avoid contact with skin, eyes, mouth, respiratory system or clothing – failure to do so will cause irritation on contact. Always wear rubber gloves and either safety goggles or a face shield when handling this product. Avoid breathing tablet dust; it is irritating to the eyes, nose and throat and potentially fatal. Wash contaminated clothing before reuse.

IN CASE OF EMERGENCY INVOLVING THIS PRODUCT, PHONE (800) 424-9300.

FIRST AID INSTRUCTIONS

If contact with skin occurs, remove clothing and wash with water for 15-20 minutes. If irritation occurs, seek medical attention. If eye contact occurs, hold eye open and flush with water for at least 15 minutes. Get immediate medical treatment. If swallowed, promptly drink large quantities of water. DO NOT induce vomiting. Avoid alcohol. Call physician immediately. If inhaled, move victim to fresh air and get immediate medical attention. In case of fire, immediately evacuate the area and notify the fire department.

MATERIAL SAFETY DATA SHEET

BIO-SANITIZER® DISINFECTING TABLETS

EMERGENCY TELEPHONE: (800) 424-9300

DATE PREPARED: JANUARY 2005

I. PRODUCT IDENTIFICATION

TRADE NAME	Bio-Sanitizer®	IDENTIFICATION NUMBER	UN 2880
CHEMICAL NAME	Calcium Hypochlorite, Hydrated, Tablets	PACKING GROUP	II
CHEMICAL ABSTRACT SERVICE NO.	CAS #7778-54-3	REPORTABLE QUANTITY	10 pounds/4.5 Kg.
CHEMICAL FAMILY	Hypochlorite	HMSIS/NFPA RATING	3/0/1
FORMULA	Ca (OCl) ₂ • H ₂ O	I.M.O. DESCRIPTION	Calcium Hypochlorite, Hydrated, Class 5.1, UN 2880, Packing Group II, RQ 10, IMDG Code Page 5138
U.S. DOT SHIPPING NAME	Calcium Hypochlorite, Hydrated		
U.S. DOT HAZARD CLASS	5.1 Oxidizer		

II. INGREDIENTS

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

BOILING POINT AT 760 mm Hg	Decomposes at 180° C	SOLUBILITY IN H ₂ O; % BY WEIGHT	217 g/l at 27° C
SPECIFIC GRAVITY OF TABLET	1.94 (H ₂ O = 1)	APPROXIMATE BULK DENSITY	61 lbs./ft ³
pH OF SOLUTION	Alkaline	HEAT OF SOLUTION	Slightly Exothermic
APPEARANCE AND ODOR	White with chlorine odor	VOLUME % VOLATILE	Not Applicable

IV. FIRE AND EXPLOSION DATA

FLASH POINT	None
EXTINGUISHING MEDIA	Water Only - Smothering Ineffective
SPECIAL FIRE FIGHTING PROCEDURES	NIOSH-Approved, positive pressure, self-contained breathing apparatus with full face piece for possible exposure to hazardous gas.
UNUSUAL FIRE & EXPLOSION HAZARD	Decomposes rapidly at 180° C, generating oxygen and heat. Containers may rupture. (Do <u>NOT</u> use dry extinguishers containing ammonium compounds).

V. HEALTH HAZARD DATA

ACUTE TOXICITY DATA (ANIMAL)		CLASSIFICATION	
LC 50 INHALATION	(Rat) No Mortality at 3.5 mg/l (1 hour)	INHALATION	Irritating
LD 50 ORAL	850 mg/kg (Rat)	SKIN	Irritating
LD 50 DERMAL	(Rabbit) > 1000 mg/kg	EYE	Corrosive
LC 50 AQUATIC	TLM 96 Hr.: 10-1 ppm	INGESTION	Toxic
CAUSES BURNS TO EYES AND SKIN		AQUATIC	Highly Toxic
CHRONIC TOXICITY	There are no known or reported effects from repeated exposure.		

VI. EFFECTS OF OVEREXPOSURE

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. Contact may cause impairment of vision and corneal damage. Contact with skin may cause severe irritation, burns, or tissue destruction.
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.

VII. EMERGENCY AND FIRST AID PROCEDURES

INHALATION	Remove to fresh air. Give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention immediately.
EYE CONTACT	Immediately flush with large amounts of water for fifteen (15) minutes, rinsing eye thoroughly. Get medical attention.
SKIN CONTACT	Wash with plenty of soap and water for fifteen (15) minutes. Remove contaminated clothing and wash before reuse. If skin irritation occurs, get medical attention.
INGESTION	If conscious, drink a large quantity of water and common vegetable oil. Do <u>NOT</u> induce vomiting. Take immediately to hospital. Avoid alcohol. If unconscious, or in convulsions, seek medical attention immediately. Do not give anything by mouth to an unconscious person.

VIII. REACTIVITY DATA

STABILITY	Unstable.
CONDITIONS TO AVOID	Any form of contamination or excessive heat above 177° C.
INCOMPATIBILITY	Acids, combustible materials, organics, reducing agents, flammables, beverages, compounds containing nitrogen, dry powder fire extinguishers (containing mono-ammonium phosphate).
HAZARDOUS DECOMPOSITION PRODUCTS	Acids or ammonia contamination will release toxic gas. Excessive heat may cause decomposition and release chlorine gas.

IX. SPILL AND LEAK PROCEDURE

USE EXTREME CAUTION IN HANDLING SPILLED MATERIAL. CONTAMINATION WITH ORGANIC OR COMBUSTIBLE MATERIAL MAY CAUSE FIRE OR VIOLENT DECOMPOSITION. IF FIRE OR DECOMPOSITION OCCURS IN AREA OF SPILL, IMMEDIATELY DOUSE WITH PLENTY OF WATER. OTHERWISE, SWEEP UP ALL VISIBLE MATERIAL USING A CLEAN, DRY SHOVEL AND BROOM AND DISSOLVE MATERIAL IN WATER. CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT AND RCRA REGULATIONS.

X. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	If conditions are dusty, use NIOSH respirator with acid gas cartridge and dust pre-filter.
VENTILATION	Not required unless dusty conditions are encountered. Store and use in a well ventilated area.
EYE PROTECTION	Chemical safety goggles.
GLOVES	Natural or synthetic rubber.
OTHER PROTECTIVE EQUIPMENT	Boots, aprons, or chemical suits as required to prevent skin contact.

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ADDITIONAL CHEMICAL PRODUCTS FROM NORWECO

BIO-DYNAMIC® TABLET FEEDERS

Bio-Dynamic tablet feeders are a technological advancement in self-contained dry chemical dosing systems for the treatment of water or wastewater. A low cost, low maintenance and extremely effective method of chemical treatment, Bio-Dynamic feeders



have no mechanical components and require no electricity. The safety, accuracy and reliability provided by Bio-Dynamic feeders outperform gas, liquid and ultraviolet systems. With twelve different models, Bio-Dynamic feeders have multiple installation options that provide maximum flexibility, including direct burial, in-line and contact chamber mounting. Riser assemblies are available to eliminate the need for a manhole or separate enclosure during direct burial installations. Fully serviceable from finished grade, riser assemblies eliminate the need for confined space entry equipment required by OSHA regulations. Direct burial models include trim lines that allow height adjustment on site for each installation. Molded inlet and outlet hubs allow the Bio-Dynamic feeder to be directly connected to treatment system piping without the need for a separate drop box. The tiered flow deck of the Bio-Dynamic feeder accommodates variable, intermittent and surge hydraulic flows into the system. The flow deck directs liquid to the feed tubes during low flows and disperses liquid velocity throughout the feeder during peak flows, resulting in consistent chemical application. Chemical dosage is further controlled by interchangeable weir plates or an optional sluice that can be completely adjusted from a 1" to 3" outlet width. The sluice can be adjusted during tablet feeder operation using only a standard socket wrench with extension. All models are

backed by a ten year limited warranty. Standard components include one-piece feed tubes with twist lock caps, adjustable inlet baffle, molded inlet and outlet hubs, molded mounting feet and interchangeable outlet weir plates.

BIO-NEUTRALIZER® DECHLORINATION TABLETS

Bio-Neutralizer dechlorination tablets are formulated to effectively remove free and combined chlorine from water or wastewater treatment system flows. Containing 35% active sodium sulfite, Bio-Neutralizer tablets will reduce or remove chlorine and protect water quality without degrading environmental conditions. Research shows that higher concentrations of sodium sulfite will reduce beneficial dissolved oxygen in receiving environments, producing harmful effects on the ecosystem. The superior formulation of Bio-Neutralizer dechlorination tablets provides consistent reduction or elimination of residual chlorine without affecting water quality, dissolved oxygen or other discharge parameters. Bio-Neutralizer tablets are packaged in easy to open, resealable 25 lb. and 45 lb. Department of Transportation approved containers.

BIO-GEM® ORGANIC DIGESTER

A blend of bacteria, enzymes and natural growth accelerators, Bio-Gem organic digester effectively digests grease, fats and oils in wastewater treatment systems, lift stations, septic tanks, sand filters, drain lines and commercial grease traps. When used as directed, Bio-Gem liquid will quickly and effectively convert common grease, fats and oils into carbon dioxide and water. This organic digestion process is much more effective and reliable than compounds that merely emulsify the grease, fats and oils, sending the problem to downstream treatment processes. Regular use of Bio-Gem liquid will reduce odors, stabilize effluent quality, reduce system maintenance and minimize tank pump-out frequency. Packaged in one or five gallon containers and 55 gallon drums, Bio-Gem organic digester is environmentally safe and works in aerobic or anaerobic conditions.



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