

***norweco*[®]**

BLUE CRYSTAL[®]

RESIDENTIAL DISINFECTING TABLETS

GENERAL SPECIFICATIONS

Blue Crystal tablets shall be formulated and produced to insure effective and dependable disinfection for wastewater systems subject to low, sustained, variable and intermittent flows. Blue Crystal tablets shall provide a sufficient dose of chlorine for positive disinfection of any residential wastewater system. The tablets shall be 2⁵/₈" diameter, compressed to 1" thickness with an approximate weight of 5 oz. and incorporate beveled edges to insure consistent dosage. Standard calcium hypochlorite or trichloroisocyanurate tablets do not provide a sufficient chlorine dose for complete disinfection in low flow systems and therefore shall not be considered for this application.

TABLET PROPERTIES AND USAGE

Blue Crystal disinfecting tablets shall be registered with the USEPA and all applicable State Departments of Agriculture as a wastewater microbiocide and disinfectant. The tablets shall have an active ingredient of 73% calcium hypochlorite and contain a minimum of 70% available chlorine. When used as directed, Blue Crystal disinfecting tablets shall provide a more economical, safe and convenient method of disinfection than ultraviolet or liquid based systems. The consistent dissolve rate of Blue Crystal disinfecting tablets shall provide an effective chemical dose and improved control over chlorine residual. Therefore, other tablets of similar composition shall not be considered for this application.

PRODUCT APPLICATION

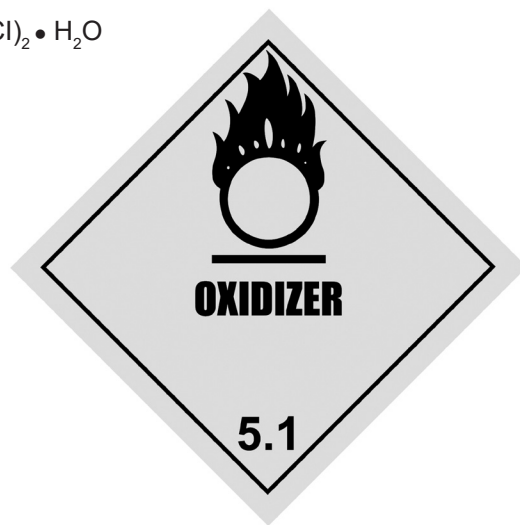
The 2⁵/₈" diameter by 1" thick Blue Crystal tablets shall be utilized for the disinfection of wastewater treatment systems. The tablets shall maintain a consistent chemical application rate at intermittent peak flow factors as high as four and shall provide reliable effluent disinfection even when the significant runoff period is six hours. Blue Crystal tablets shall effectively disinfect typical wastewater flows, providing a chlorine residual that dissipates quickly to protect the receiving environment. The following is a list of common applications where the tablets can be used: septic tanks, aerobic treatment systems, sand filters, spray irrigation systems and marine sanitation devices.

DESIGN DATA

Tablet Size	2 ⁵ / ₈ " diameter, 1" thick
Approximate Tablet Weight	5 oz. (140 grams)
Active Ingredient	73% Calcium Hypochlorite – $\text{Ca}(\text{OCl})_2 \cdot \text{H}_2\text{O}$
Minimum Available Chlorine	70%
Inert Ingredient Content	27%
EPA Registration	63243-4
Appearance Characteristics	White Tablet with Blue Crystals
Special Design Features	Beveled Edges

SPECIAL INSTRUCTIONS

Blue Crystal 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 sealed original container in a cool, dry, well-ventilated area. It is a violation of Federal Law to use Blue Crystal disinfecting tablets in a manner inconsistent with its labeling. Read the product container label and Blue Crystal disinfecting tablet Safety Instructions and Tablet Properties and Usage instructions before use. Always wear rubber gloves and either safety goggles or a face shield when handling Blue Crystal tablets.



CALCIUM HYPOCHLORITE,
HYDRATED MIXTURES
UN 2880

PRODUCT STORAGE

Blue Crystal disinfecting tablets are a strong and highly corrosive oxidizing agent. Blue Crystal 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 Blue Crystal 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 Blue Crystal tablets, carefully read the product container label and the Product Storage, Tablet Handling, Caution and First Aid sections of these instructions. Do not add Blue Crystal 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 Blue Crystal tablets or the cleaning of chemical feed equipment. Always wear rubber gloves and either safety goggles or a face shield when handling Blue Crystal 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 Blue Crystal 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 Blue Crystal 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 Blue Crystal 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 Blue Crystal 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 Blue Crystal 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

Blue Crystal disinfecting tablets are highly corrosive. Contact with other chlorine products or reducing agents, such as swimming 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, ears and nose 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.

GENERAL CHEMICAL & PHYSICAL PROPERTIES

BLUE CRYSTAL® RESIDENTIAL DISINFECTING TABLETS

EMERGENCY TELEPHONE: (800) 424-9300

CHEMTREC #16012

DATE PREPARED: JANUARY 2019

I. PRODUCT IDENTIFICATION

TRADE NAME	Blue Crystal®	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	HMIS/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, 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 and colorant)	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 Blue Crystals and 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	Corrosive
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

<u>PERMISSIBLE</u>	No permissible exposure limits have been established by OSHA.
<u>ACUTE</u>	
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

<u>INHALATION</u>	Remove to fresh air. Give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention immediately.
<u>EYE CONTACT</u>	Immediately flush with large amounts of water for fifteen (15) minutes, rinsing eye thoroughly. Get medical attention.
<u>SKIN CONTACT</u>	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.
<u>INGESTION</u>	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 tablet dosing systems for water or wastewater treatment. A low cost, low maintenance and effective method of chemical treatment, Bio-Dynamic feeders have no mechanical



components and require no electricity. The safety, accuracy and reliability of Bio-Dynamic feeders outperform gas, liquid and ultraviolet systems. With fifteen different models, Bio-Dynamic feeders accommodate a wide range of flows and plant conditions. Installation flexibility including direct burial, inline and contact chamber mounting provides many options for locating the feeder. Complete 24" riser assemblies are available for Series 2000 and 4000 tablet feeders, while the LF Series uses 4" PVC pipe and Norweco's remote removal system to allow service from grade. No model of Bio-Dynamic feeder will ever require confined space entry equipment under OSHA regulations. 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. In many models, 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, molded inlet and outlet hubs, molded mounting feet and Norweco's tiered flow deck.

BIO-SANITIZER® DISINFECTING TABLETS

Bio-Sanitizer disinfecting tablets are uniquely formulated to provide efficient and reliable disinfection of water or wastewater treatment system flows. Bio-Sanitizer tablets provide treatment plant operators a consistent means to meet disinfection standards without exceeding new and stringent limits for total residual chlorine. Produced from a proprietary grade of calcium hypochlorite and containing a minimum of 70% available chlorine, Bio-Sanitizer tablets are registered by the U.S. Environmental Protection Agency and the Canadian Ministry of the Environment. With a unique beveled edge, Bio-Sanitizer tablets dissolve slowly and evenly, providing effective, economical bacteria killing power. Bio-Sanitizer disinfecting tablets are packaged in easy to open, resealable 10 lb., 25 lb., 45 lb. and 100 lb. Department of Transportation approved containers.

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.

norweco®

*Engineering the future of water
and wastewater treatment*

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