Sewage treatment and Bio chemicals

Website:-www.rxmarine.com
# Index

## Sewage treatment and Bio chemicals

By RX Marine International

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Rxsol Zyme BTC

Part/Order no: Packing
RXSOL-15-1496-005 5.00 Ltr
RXSOL-15-1496-010 10.00 Ltr

Rxsol Zyme BTC

Rxsol Zyme BTC is a unique biological active liquid formulation containing specialized bacterial strains, biodegradable low foaming chemical cleaners and anti foam agents.

Application

How it works

Rxsol Zyme is specifically formulated to replace aggressive, toxic toilet cleaners that can disable the sewage treatment plant by killing the naturally occurring bacteria that are essential to its operation. Conventional toilet cleaners may also cause foaming in the vacuum inductor which destroys the vacuum in the sanitary flushing system. Rxsol Zyme BTC effectively cleans the toilets and doses millions of selected safe bacteria into the sanitary system. These powerful specialized bacteria colonies the organic waste lining the pipe system and remove the organic deposit. On draining to the sewage treatment plant, the bacteria will enhance the biological activity, reducing solids and odors. Grease, fats, starch and other organic compounds are digested by Rxsol Zyme BTC. The degradation of paper, protein, waste product residuals and other odorous materials is also enhanced. Rxsol Zyme BTC cleans more thoroughly and deeply compared to conventional cleaning products. The use of cleaning products containing hazardous chemicals such as acids, caustics, bleaches, disinfectants, etc., can be reduced.

Note

• Easy to use.
• Biodegradable.
• Suitable for use in all marine sanitary and sewage treatment systems.
• Cleans toilets, sinks, showers, etc.
• Removes obnoxious odors from the sanitary system.
• It is safe and has no special handling requirements.
• Replaces conventional cleaners potentially harmful to the biological sewage system.

Directions for Use and Dose Rates

Use Rxsol Zyme BTC daily as a normal toilet cleaner. Lift up seat, open the bottle and direct nozzle downwards. Squeeze and direct the jet to adequately cover the surface of the toilet bowl. After some minutes scrub vigorously with a toilet brush and flush with water. For removal of water scale, uric acid and rust stains, use Rxsol Zyme Toilet Descaler. See product data sheet. For heavy soil pipes dose Rxsol Zyme DPC to initiate the cleaning process and continue with Rxsol Zyme BTC. See also product data sheet for Rxsol Zyme DPC. The use of toilet cleaners containing toxic ingredients as acids, disinfectants, bleaches, etc., will have a detrimental effect on the biological activity and should not be used with Rxsol Zyme BTC.
**Technical Specifications**

<table>
<thead>
<tr>
<th>APPEARANCE</th>
<th>Green liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH, in conc.</td>
<td>9</td>
</tr>
<tr>
<td>DENSITY, in g/cm³ at</td>
<td>1.0</td>
</tr>
<tr>
<td>COMPATIBILITY</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>No known effect</td>
</tr>
<tr>
<td>Rubber</td>
<td>No known effect</td>
</tr>
<tr>
<td>Synthetic rubber 15°C</td>
<td>No known effect</td>
</tr>
</tbody>
</table>

**Private Labeling**

Private labeling services offer you the opportunity of having our high quality, manufactured products branded as your own. All RX-SOL products can be rebranded with your company name, logo, contact details, and more included on each consignment and, if required delivered direct to a site of your choice with your own delivery paperwork.

Private labeling is a great way to build brand loyalty with your customers. RX MARINE offers full-color private labeling on a wide variety of products to all our customers... and with no minimum quantity. Whether you need 1 or 100, we will place your company name, logo and contact information on the finished product.

We offer several styles and sizes of labels and packaging. From standard labels with one color to glossy, waterproof labels with full-color printing. We will work with you in choosing the proper label depending on the product and your specific needs.

If you are interested in private labeling your products, please make sure you provide us with a high-resolution (300 dpi or greater) logo. JPEG or EPS files are preferred. We want to make sure your product looks as good as possible, so it’s very important to start with a high-quality version of your logo. If you have questions about the type of file you should supply, give us a call and we can give you guidance.

For more information:

- www.Rxmarine.com
**Product Description:**
Rxsol Zyme DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).

**How it Works**
Rxsol Zyme DPC is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialized bacterial strains and enzymes in Rxsol Zyme DPC will digest grease, fats, starch and other organic compounds. The bacteria in Rxsol Zyme DPC will colonise the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, Rxsol Zyme DPC will greatly enhance the biological activity breaking down solids and removing obnoxious odors which can vent back through the systems.

**Directions of Use and Dosage Rates**
**Pipe Cleaning**
Maintenance dosing will keep sinks, scuppers and waste food disposal units clean, clear and odor free. A liquid solution should be prepared by adding one solupac to 10 liters of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate.

Initial doses of 0.5 liters of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Before plumbing work for pipe modification or retrofits, pipes can be cleaned by isolating the system and filling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

**Holding Tanks**
Organic wastes can be kept liquid and pumpable. Tanks can be cleaned without manual entry and without the use of harsh toxic cleaning chemicals. Prepare a solution of one solupac to ten liters of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) before dosing into the holding tank once or twice a week. The dose rates should be approximately one solupac per 1000 liter waste in the tank. Tank cleaning should be carried out using Rxsol Zyme 700FN.

**Product Properties**

| APPEARANCE | Tan, saw dust like powder in sealed solupacs |
| pH, in conc. | N/A |
| COMPATIBILITY | |
| Metal | No known effect |
| Rubber | No known effect |
| Synthetic | No known effect |

For more information about the product mail us at: mail@rxmarine.com
Features, Benefits and Applications

- Powder biological formulation for easy use.
- Biodegradable.
- Clears pipes and systems blocked by organic waste residuals.
- Eliminates obnoxious odors from soiled pipe lines.
- Cleans fouled pipes and systems, particularly long horizontal runs.
- Keeps holding tank organic waste liquid pump able and odor free.
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work.
- Overcomes potential safety problems associated with the use of toxic cleaning chemicals.

**Read the Material Safety Data Sheet before using this product**

Our Services

We offer:

* Tank Cleaning Supercargo Services for Chemical Tankers, Product.
* Tankers in MEDIUM-RANGE/ Lr1, Lr2/ Aframax/Suezmax/ VLCC ETC.
* Cleaning vessels from DPP to CPP.
* Cleaning vessels from Vegetable oils/ CPP to WW standard.
* Vessel preparation for loading cargo of Methanol Ethanol.
* Tank Cleaning advice and recommended tank cleaning procedure.

Experienced Riding Squads.
We Provide experienced Riding squads for tank cleaning purposes at very economical rates.

INSPECTIONS

* Chemical and product tankers assessment.
* Marine Superintendent services.
* Vessel inspections and independent marine surveys.
* Vessel purchasing inspections.
* Safety inspections.
* Assistance in preparing the vessel for oil company inspection, CID, Port State, USCG or any other inspection Required.

for more information : www.Rxmarine.com
Rxsol Zyme DPC

Rxsol Zyme DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).

How it Works

Rxsol Zyme DPC is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialized bacterial strains and enzymes in Rxsol Zyme DPC will digest grease, fats, starch and other organic compounds. The bacteria in Rxsol Zyme DPC will colonies the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, Rxsol Zyme DPC will greatly enhance the biological activity breaking down solids and removing obnoxious odors which can vent back through the systems.

Pipe Cleaning

Maintenance dosing will keep sinks, scuppers and waste food disposal units clean, clear and odor free. A liquid solution should be prepared by adding one solupac to 10 liters of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate. Initial doses of 0.5 liters of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Before plumbing work for pipe modification or retrofits, pipes can be cleaned by isolating the system and filling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

Holding Tanks

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Rxsol Zyme DPC

Rxsol Zyme DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).

Note

- Powder biological formulation for easy Use.
- Biodegradable.
- Clears pipes and systems blocked by organic waste residuals.
- Eliminates obnoxious odours from soiled pipe lines.
- Cleans fouled pipes and systems, particularly long horizontal runs.
- Keeps holding tank organic waste liquid pump able and odor free.
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work.
- Overcomes potential safety problems.

Technical Specifications

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Tan, saw dust like powder in sealed Solupacs</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH, in conc.</td>
<td>N/A</td>
</tr>
<tr>
<td>Density, in g/cm³ at 15°C</td>
<td>1.0</td>
</tr>
<tr>
<td>Compatibility</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>No known Effect</td>
</tr>
<tr>
<td>Rubber</td>
<td>No known effect</td>
</tr>
<tr>
<td>Synthetic rubber at 15°C</td>
<td>No known effect</td>
</tr>
</tbody>
</table>

Stain Removal Tips

Unknown

If a stain cannot be identified, treat with cool water first, then sponge with a good quality laundry liquid solution. Rinse well and if stain persists try equal quantities of methylated spirits (wood alcohol) and ammonia, testing first to note effect on colour and fabric. If colour is affected, omit ammonia. As a last resort, try a mild bleach, e.g. A diaper wash/sanitiser container sodium percarbonate.

Tips for removal of RED WINE Stains from:
- Quickly Remove as much of the excess red wine from the material by blotting the spot with any absorbent material. Paper or cotton towels work best. Place a piece of the towel on the front and back of the material and press down & Hold for two to three minutes to absorb the wine. Remove and replace the towels and then repeat the process.

for more information :- www.Rxmarine.com

For more information about the product mail us at :- mail@rxmarine.com
Rxsol Zyme DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).

**TEST SPECIFICATION**

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
<td>ASTM D 4176 B &amp; C</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>Saybolt 28</td>
<td>ASTM D 165 30</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity @15 0C</td>
<td>0.88-0.91</td>
<td>ASTM D 4052</td>
<td></td>
</tr>
<tr>
<td>Cu Corrosion 30min@100 0C</td>
<td>1</td>
<td>ASTM D 130 1</td>
<td></td>
</tr>
<tr>
<td>Distillation IBP 0C</td>
<td>180.0</td>
<td>ASTM D 850 182.8</td>
<td></td>
</tr>
<tr>
<td>Distillation DP 0C</td>
<td>215.0</td>
<td>ASTM D 850 180.0</td>
<td></td>
</tr>
<tr>
<td>Aromatics Vol %</td>
<td>98.0</td>
<td>ASTM D 93 65</td>
<td></td>
</tr>
<tr>
<td>Max By GC</td>
<td>99.9</td>
<td>ASTM D 611 13</td>
<td></td>
</tr>
<tr>
<td>Flash Point 0C</td>
<td>60 Min</td>
<td>ASTM D 1744 100</td>
<td></td>
</tr>
<tr>
<td>Mixed Aniline Point 0C</td>
<td>18</td>
<td>ASTM D 2500 - 18</td>
<td></td>
</tr>
<tr>
<td>Sulfur Content Wt ppm</td>
<td>200 Max</td>
<td>ASTM D 4952 LT 1</td>
<td></td>
</tr>
<tr>
<td>Evaporation Time(nBuAc=470Sec)</td>
<td>6000</td>
<td>ASTM D3539 Viscosity @ 25 0C mm2/S 1.25</td>
<td></td>
</tr>
<tr>
<td>LT 1 Evaporation Time</td>
<td>470 Sec</td>
<td>ASTM D445</td>
<td></td>
</tr>
</tbody>
</table>

**Application**

**How it Works**

Rxsol Zyme DPC is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialized bacterial strains and enzymes in Rxsol Zyme DPC will digest grease, fats, starch and other organic compounds. The bacteria in Rxsol Zyme DPC will colonise the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, Rxsol Zyme DPC will greatly enhance the biological activity breaking down solids and removing obnoxious odors which can vent back through the systems.

**Pipe Cleaning**

Maintenance dosing will keep sinks, scuppers and waste food disposal units clean, clear and odor free. A liquid solution should be prepared by adding one solupac to 10 liters of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate. Initial doses of 0.5 liters of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Before plumbing work for pipe modification or retrofits, pipes can be cleaned by isolating the system and filling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

**Holding Tanks**

Organic wastes can be kept liquid and pump able. Tanks can be cleaned without manual entry and without the use of harsh toxic cleaning chemicals. Prepare a solution of one solupac to ten liters of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) before dosing into the holding tank once or twice a week. The dose rates should be approximately one solupac per 1000 liter waste in the tank. Tank cleaning should be carried out using Rxsol Zyme 700FN.
Note

- Powder biological formulation for easy Use.
- Biodegradable.
- Clears pipes and systems blocked by organic waste residuals.
- Eliminates obnoxious odours from soiled pipe lines.
- Cleans fouled pipes and systems, particularly long horizontal runs.
- Keeps holding tank organic waste liquid pump able and odor free.
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work.
- Overcomes potential safety problems associated with the use of toxic cleaning chemicals.

Membership Plan

Thank you for your interest in joining our Membership Plan. Our main goal is to provide the best services to our valued customers. Our services are built around providing you with best quality products at very low cost. We believe that this will help you to maximize the benefits.

Membership Plan Benefits ..

- Get High Quality Product in to Low Price.
- All amount paid for the membership plan to be refundable.
- Same price in India , UAE, Singapore, Bahrain.
- Members are offered to supply the RXSOL Brand on behalf of Rx Marine International.
- Members are offered the benefit of private Labeling also to establish his Own Brand/Logo through us.

<table>
<thead>
<tr>
<th>Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPEARANCE</strong></td>
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<tr>
<td>pH, in conc.</td>
</tr>
<tr>
<td>DENSITY, in g/cm3 at</td>
</tr>
<tr>
<td>COMPATIBILITY</td>
</tr>
<tr>
<td>Metal</td>
</tr>
<tr>
<td>Rubber</td>
</tr>
<tr>
<td>Synthetic rubber</td>
</tr>
</tbody>
</table>

For more information about the product mail us at :- mail@rxmarine.com

For more information :– www. Rxmarine.com
RXSOL Zyme MSD Bio

RXSOL Zyme MSD Bio is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac). RXSOL-15-1546 is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialised bacterial strains and enzymes in RXSOL-15-1546 will digest grease, fats, starch and other organic compounds. The bacteria in RXSOL-15-1546 will colonise the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, RXSOL-15-1546-020 will greatly enhance the biological activity breaking down solids and removing obnoxious odours which can vent back through the systems.

Pipe cleaning

Maintenance dosing will keep sinks, scuppers and waste food disposal units clean, clear and odour free. A liquid solution should be prepared by adding one solupac to 10 litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate. Initial doses of 0.5 litres of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes.

Before plumbing work for pipe modification or retrofits, pipes can be cleaned by isolating the system and filling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

Holding tanks

Organic wastes can be kept liquid and pumpable. Tanks can be cleaned without manual entry and without the use of harsh toxic cleaning chemicals. Prepare a solution of one solupac to ten litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) before dosing into the holding tank once or twice a week. The dose rates should be approximately one solupac per 1000 litre waste in the tank. Tank cleaning should be carried out using RXSOL-15-1546.

NOTE

Severely scaled systems should be acid cleaned.

Features

- Powder biological formulation for easy use.
- Biodegradable.
- Clears pipes and systems blocked by Organic waste residuals.
- Eliminates obnoxious odours from soiled pipe lines.
- Cleans fouled pipes and systems, particularly long horizontal runs.
- Keeps holding tank organic waste liquid Pumpable and odour free.
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work.
- Overcomes potential safety problems associated with the use of toxic cleaning chemicals.
<table>
<thead>
<tr>
<th>Part/Order no:</th>
<th>Packing</th>
</tr>
</thead>
</table>

For more information about the product mail us at :- mail@rxmarine.com
Calcium Hypochlorite Conc active Chlorine

Part/Order no:  
RXSOL-31-3026-025  
RXSOL-31-3026-210

Packing  
25.00 Ltr  
210.00 Ltr

Calcium Hypo Chlorite Conc activ Chlorine

Decolorant for cargo hold cleaning & Germicide and Disinfectant for ship sanitation system solution is widely used in water works for the chlorination of water. It is more commonly used for disinfection of waste water in treatment plants. High-test hypochlorite (HTH) is sold for chlorination of swimming pools and contains approximately 30% calcium hypochlorite. The crystalline salt is also sold for the same use; this salt usually contains less than 50% of calcium hypochlorite. However, the level of active chlorine may be much higher. Calcium Hypochlorite is a multi-purpose chemical of disinfectant, decolorant, germicide, antiseptic and bactericide.

Application

Calcium Hypochlorite, C\textsubscript{a}(OCI)\textsubscript{2}

A pale clear liquid, crystalline oxidizing material. Hazard: Toxic by ingestion, skin contact and inhalation. Dangerous fire risk when in contact with organic materials. Used as an algicide, bactericide, deodorant, portable water purifier, and disinfectant for swimming pools etc.

Dose

General formulation to calculate how much bleach is needed to add to a tank or a pipeline to disinfect it to a given chlorine residual using a given disinfectant. Usually someone wants to know how to meet an AWWA Standard (like C651-92, Disinfection of Water Mains). The equation below should be used to estimate the amount of sodium / Calcium hypochlorite (Chlorine Water is 6.00% sodium hypochlorite) needed to disinfect a given quantity of water to a desired chlorine concentration.

\[
\text{Volume of hypo} = \frac{\text{volume of water} \times (\text{req'd residual in ppm})}{1,000,000 \times \text{hypo} \%}
\]

For example, say you had installed a new 5,000 gallon tank and wanted to make sure that you had at least a 100 ppm solution of chlorine in it.

How much 6.00% Hypochlorite would you need to add?

\[
(5,000 \text{ gal} \times 100 \text{ ppm}) / (1,000,000 \times 0.06) = 8.33 \text{ gallons}
\]

How much 12% Hypochlorite solution would you need?

\[
(5,000 \text{ gal} \times 100 \text{ ppm}) / (1,000,000 \times 0.12) = 4.17 \text{ gallons}
\]

If you use calcium hypochlorite (the white, powder version of chlorine, like HTH pool cleaner), the equation becomes:
Calcium Hypo Chlorite Conc
active Chlorine

Wgt. of Calcium Hypo (lbs) = gal of water x 8.33 lb / gal m x (---------------------------)
1,000,000 x hypo %

This is simply the previous equation multiplied by the conversion factor of 8.33 pounds per gallon of water.

Let's assume that we still need to disinfect 5,000 gallons at 100 ppm.

How many pounds of 65% calcium hypochlorite (HTH pool cleaner) are needed?

(8.33 lbs/gal. x 5,000 gal x 100 ppm) / (1,000,000 x .65) = 6.4 pounds.

Working With Copper

Benzotriazole:
An effective corrosion inhibitor for copper alloys

Copper is the only engineering metal that is noble metal. It resists many corrosive environments. But copper tarnishes or corrodes under some circumstances. In recent years, investigators have shown that a system of tarnish or corrosion control for copper, brass, and bronze can be built around the organic compound, 1, 2, 3, benzotriazole.

Benzotriazole forms a strongly bonded chemisorbed two-dimensional barrier film less than 50 angstroms thick. This insoluble film, which may be a monomolecular layer, protects copper and its alloys in aqueous media, various atmospheres, lubricants, and hydraulic fluids. Benzotriazole also forms insoluble precipitates with copper ions in solution (that is, it chelates these ions), thereby preventing the corrosion of aluminum and steel in other parts of a water system.

J. B. Cotton. Imperial Metal Industries Ltd., Birmingham, England, has studied the tarnishing of copper and copper alloys exposed to humid environments, and the possibility of the prevention of staining by reaction with triazole type Compounds. At the Second International Congress on Metal Corrosion, New York, 1963, he summarized the properties of commercially available benzotriazole and the reaction of this class of compound with copper ions.

for more information :- www.Rxmarine.com
Chlorine Tablet

Part/Order no: RXSOL-31-3021-CT-CYN
Packing: 10.00 kg

Description
A dry organic chlorine in tablet form giving a high available chlorine base, ensuring an effective sterilising and disinfecting action in slow release form. 200g tablet with 90% available chlorine.

How it Works
The tablet is dosed to the water supply tank preferably suspended away from the fabric of the tank. The tablets should not be allowed to rest on the bottom of metal tanks. Being in tablet form this is a safer method of administering chlorine than the usual liquid preparations. When used as part of a planned programme of protection it will assist in control of problems associated with such areas as bacterial and organic fouling including legionnaires disease.

Dose Rates
Rates will be determined by the extent of current problems. An initial dose will be required to give a free residual chlorine reserve of 5-50ppm for a minimum of 1 hour. Thereafter a reserve of 0.5-2.0ppm is normally sufficient. Also available as rapid dissolving (RXSOL-31-3021-CT-CYN) 1 tablet will give 50ppm chlorine in 3.6m3 water.

Safety & Handling
RXSOL-31-3021-CT-CYN is an oxidising agent. Contact with water liberates chlorine gas. May cause fire if wetted in storage. Dust is harmful - do not breathe dust or fumes. Normal safety precautions should be observed including use of gloves and goggles. Do not eat, drink or smoke whilst handling.

Specifications

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active chlorine%</td>
<td>: 90 - 95%</td>
</tr>
<tr>
<td>2. Chemical Formula</td>
<td>: C3 O3 N3 Cl3</td>
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<tr>
<td>3. Molecular Weight</td>
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<tr>
<td>5. Melting Point</td>
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<td>6. UN No.</td>
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<tr>
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<tr>
<td>8. CAS No.</td>
<td>: 87-90-1</td>
</tr>
<tr>
<td>9. Moisture%</td>
<td>: &lt; 0.5</td>
</tr>
<tr>
<td>10. PH (1% solution)</td>
<td>: 2.7-3.3</td>
</tr>
<tr>
<td>11. Appearance</td>
<td>: Tablet (200g)</td>
</tr>
<tr>
<td>12. Packing</td>
<td>: Plastic drum -</td>
</tr>
</tbody>
</table>

For more information about the product mail us at :- mail@rxmarine.com
## Sodium Hypo Chlorite

<table>
<thead>
<tr>
<th>Part/Order no:</th>
<th>Packing</th>
</tr>
</thead>
<tbody>
<tr>
<td>RXSOL-31-3025-025</td>
<td>25.00 Ltr.</td>
</tr>
</tbody>
</table>

### Application

- Also used as a disinfectant and germicide, especially in the sterilization of water.
- It is also used for making wool unshrinkable and in the manufacture of chlor-Oform.
- For the purpose of disinfection and bleaching, a weak soln. (1.2%) is used. For purifying water 0.02 to 0.2 % volumetric is sufficient.
- Potable Water Treatment Aquatics and Pools.
- Odor Control/Corrosion Control.
- Food & Beverage Processing.
- Wastewater Treatment.
- Cooling Towers, Inland Power.
- Stations & Industry.
- Irrigation Systems.
- Agriculture/Farming.

### HANDLING AND STORAGE PRECAUTIONS

Do not store adjacent to chemicals that may react if spillage occurs. Comply with Oman regulations, when shipped. If closed containers become heated, vent to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohol or ethers.

### DO NOT REUSE CONTAINERS

Product residues may remain in containers. All labeled precautions MUST be observed. Dispose of container in a manner meeting government regulations.

### PRODUCT DISPOSAL

Product should be completely removed from containers. Material that cannot be used or chemically reprocessed should be disposed of, in a manner meeting government regulations.

### Precaution

A weak soln. (1.2 %) is used. For purifying water 0.02 to 0.2 % volumetric is sufficient for Potable Water treatment.
SODIUM HYPOCHLORITE

**ACTIVE INGREDIENT:**
- Sodium Hypochlorite as Chlorine: 15%
- Sodium Hydroxide: 1%
- INERT INGREDIENTS: 84%
- Total: 100%

General formulation to calculate how much bleach is needed to add to a tank or a pipeline to disinfect it to a given chlorine residual using a given disinfectant. Usually someone wants to know how to meet an AWWA Standard (like C651-92, Disinfection of Water Mains). The equation below should be used to estimate the amount of sodium / Calcium hypochlorite (Chlorine Water is 6.00% sodium hypochlorite) needed to disinfect a given quantity of water to a desired chlorine concentration.

\[
\frac{\text{Volume of hypo}}{\text{Volume of water}} = \frac{\text{req'd residual in ppm}}{1,000,000 \times \text{hypo \%}}
\]

For example, say you had installed a new 5,000 gallon tank and wanted to make sure that you had at least a 100 ppm solution of chlorine in it.

How much 6.00% Hypochlorite would you need to add?

\[
(5,000 \text{ gal} \times 100 \text{ ppm}) / (1,000,000 \times 0.06) = 8.33 \text{ gallons}
\]

How much 12% Hypochlorite solution would you need?

\[
(5,000 \text{ gal} \times 100 \text{ ppm}) / (1,000,000 \times 0.12) = 4.17 \text{ gallons}
\]

If you use calcium hypochlorite (the white, powder version of chlorine, like HTH pool cleaner), the equation becomes:

\[
\text{Wgt. of Calcium Hypo (lbs)} = \frac{\text{Gal of water} \times 8.33 \text{ lb/gal m} \times \text{req'd residual in PPM}}{1,000,000 \times \text{hypo \%}}
\]

- This is simply the previous equation multiplied by the conversion factor of 8.33 pounds per gallon of water.

Let's assume that we still need to disinfect 5,000 gallons at 100 ppm. How many pounds of 65% calcium hypochlorite (HTH pool cleaner) are needed?

\[
(8.33 \text{ lbs/gal} \times 5,000 \text{ gal} \times 100 \text{ ppm}) / (1,000,000 \times 0.65) = 6.4 \text{ pounds}
\]
**Sodium Hypo Chlorite**

**Category >** Sewage treatment and bio chemicals

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**Note**

**Store in cool place**

**UN No :** 1791.

**IMDG CLASS :** 8.

**PACKING GROUP :** III.

**ODOUR :** IRRITATING, PUNGENT ODOR

**R31 :** Contact with acids liberates toxic gases.

**R34 :** Causes burns.

**S-PHRASES**

**S1/2 :** Keep locked up and out of the reach of children.

**S28 :** After contact with skin, wash immediately with plenty of water.

**S45 :** In case of accident or if you feel unwell, seek medical advice (show the label where possible).

**S50 :** Do not mix with acids.

**S50 :** Do not mix with reducing agents.

**X2 :** Restricted to professional users. Warning! Avoid exposure - obtain special instructions before use.

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**EMERGENCY AND FIRST AID PROCEDURES**

**EYE:**

OBJECT IS TO FLUSH MATERIAL OUR IMMEDIATELY AND THEN SEEK MEDICAL ATTENTION IMMEDIATELY flush eyes with a directed stream of water at least 15 minutes while forcibly holding eye lids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within one (1) minute is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

**SKIN:**

SEEK MEDICAL ATTENTION IMMEDIATELY. Flush thoroughly with cold water under shower while removing contaminated clothing and shoes. CONTINUE TO FLUSH UNTIL MEDICAL ATTENTION ARRIVES. Discard non-rubber shoes. Wash clothing before reuse.

**INHALATION:**

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.
INGESTION:
NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of milk or gelatin solution. If these are not available give large quantities of water. If vomiting occurs spontaneously, keep airway clear and give more milk, gelatin solution or water, GET MEDICAL ATTENTION IMMEDIATELY. Avoid vomiting, lavages or acidic antidotes.

NOTE TO PHYSICIAN:
Sodium Hypochlorite is an alkaline corrosive. For exposure by ingestion do not use emesis, lavages or acidic antidotes. Dilute immediately by giving milk, melted ice cream, beaten egg white, starch paste or antacids such as milk magnesia. Aluminum hydroxide gel or magnesium trisilicate gel. Avoid sodium bicarbonate because of carbon di-oxide release. Sodium thiosulphate solution may prove beneficial by reducing unreacted material.

Benzotriazole: An effective corrosion inhibitor for copper alloys
Copper is the only engineering metal that is noble metal. It resists many corrosive environments. But copper tarnish or corrodes under some circumstances. In recent years, investigators have shown that a system of tarnish or corrosion control for copper, brass and bronze can be built around the organic compound, 1, 2, 3, benzotriazole.

Benzotriazole forms a strongly bonded chemisorbed two-dimensional barrier film less than 50 angstroms thick. This insoluble film, which may be a monomolec-ular layer, protects copper and its alloys in aqueous media, various atmospheres, lubricants, and hydraulic fluids. Benzotriazole also forms insoluble precipitates with copper ions in solution (that is, it chelates these ion), thereby preventing the corrosion of aluminum and steel in other parts of a water system.

J. B. Cotton. Imperial Metal Industries Ltd., Birmingham, England, has studied the tarnishing of copper and copper alloys exposed to humid environments, and the possibility of the prevention of staining by reaction with triazole type Compounds. At the Second International Congress on Metal Corrosion, New York, 1963, he summarized the properties of commercially available benzotriazole and the reaction of this class of compound with copper ions.