

The background of the entire page is a vibrant underwater scene. At the top, a shark's head is visible on the left. Below it, a sea turtle swims towards the left. The bottom of the image shows a diverse coral reef with various colorful fish, including a clownfish, a blue tang, and a purple fish. The water is clear and blue, with sunlight filtering through from the surface.

# Safrax® Chlorine Dioxide for Sea Water Cleaning

# **SAFRAX® IS THE GLOBAL LEADER IN INSTANT CHLORINE DIOXIDE TECHNOLOGY**

Everyday, we help make the world cleaner, safer and healthier, protecting people and vital resources.

Safrax® offers a comprehensive range of products designed for AIR, WATER, and AREA TREATMENT, addressing various needs from infection control and prevention to emergency decontamination.

Safrax® provides a convenient, economical, and safe method for producing chlorine dioxide (ClO<sub>2</sub>) in solution without generating by-products such as chlorite, chlorate, chloride, or free chlorine.

Similar to ozone, chlorine dioxide (ClO<sub>2</sub>) is soluble as a true gas. Its solubility allows for easy dilution into target water, making it an effective biocide.

Chlorine dioxide (ClO<sub>2</sub>) has the ability to penetrate bacterial slime layers, also known as biofilm, effectively destroying pathogens within them.

Safrax® ClO<sub>2</sub> is free from the formation of toxic and carcinogenic chlorination by-products. It also does not result in the accumulation of harmful organic or inorganic by-products, including bromates, THMs (trihalomethanes), HAAs (haloacetic acids), and MX (methylenedianiline). This ensures a safer and more environmentally friendly biocide solution.

This distinction makes Safrax® ClO<sub>2</sub> one of the most environmentally friendly biocides available on the market today.



## **SAFRAX® CHLORINE DIOXIDE: CLEANER WATER, HEALTHIER LIFE**



**Safrax® chlorine dioxide is a unique product designed to be safe, effective, and cost-efficient.**

**It is an environmentally friendly option that offers unmatched disinfection performance.**

**Safrax® chlorine dioxide is easy to handle and safe to use, setting new standards in sea water preparation and aquarium maintenance.**

**In the context of sea water preparation, maintaining clean water is essential to ensure the health and longevity of marine life. Safrax® chlorine dioxide plays a vital role in this, effectively eliminating pathogens and controlling algae blooms without altering the water's natural balance.**



**Environmentally  
Friendly**

**Effective Pathogen  
Elimination**

**Safe for  
Marine Life**

**Cost-Efficient  
Solution**



## Cleaning Sea Water with Safrax®:

Cleaning and treating sea water is an essential task for maintaining vibrant marine ecosystems in large aquariums. Whether you're introducing new sea water into an existing system or starting fresh, Safrax® chlorine dioxide offers an innovative and environmentally-friendly approach to ensuring water quality.

### 1 Assessing Water Quality:

- **Initial Inspection:** Analyze the water coming from the sea for contaminants, pathogens, and algae.
- **Determine Cleaning Level:** Choose the desired level of cleaning based on the water's condition. Target treatment levels can range from **1 to 50 PPM**, depending on the degree of contamination.

We use an ATP/RLU tester to test the quality of the water. The relationship between the amount of ATP in the sample and the RLU result reading on the luminometer is simple:

High contamination (improper cleaning) = Large amount of ATP = More light produced in reaction = High RLU reading.

RLU stands for Relative Light Unit and is the unit of measure used in bioluminescence. Luminometers measure and quantify that light as an RLU output.

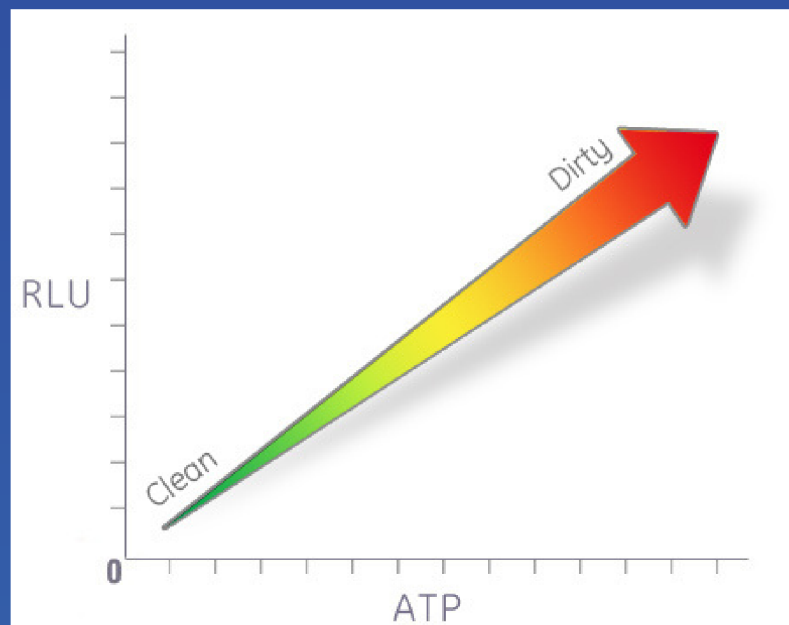
Because manufacturers use different sensor technologies and algorithms to add up photons, RLU measurements will vary from system to system.

The RLU reading is directly proportional to the amount of ATP collected from the sample. A high RLU reading indicates a large amount of ATP at the test location. This in turn indicates the presence of contaminants.

Less ATP leads to reduced light output during the bioluminescent reaction and consequently, a lower RLU reading.

ATP/RLU levels in an aquarium should be as low as possible, as elevated ATP/RLU levels can indicate the presence of high amounts of organic matter and potential bacterial contamination, which could harm fish and other aquatic life.

We use Hygiena to test the water quality:





Although there isn't a universally accepted "safe" level of ATP/RLU for aquarium water, some professionals suggest that an ATP level of **less than 100 Relative Light Units (RLUs)** is desirable for maintaining a healthy environment for fish.

However, this can depend on the specific aquarium setup, the types of fish, and the overall health of the aquarium ecosystem. Regular testing is important to monitor ATP/RLU levels and to take necessary action to maintain a clean and healthy environment for fish.

| Hygiene ATP Levels of Clean |          |   |
|-----------------------------|----------|---|
| Ultra-Clean                 | 0-10     | Potable Water   |
| Very Clean                  | 11-30    | Ideal Clean Sea Water Range   |
| Good Clean                  | 31-80    | Less than <b>100 RLUs</b> is desirable for maintaining a healthy environment for fish |
| Somewhat Dirty              | 81-200   | Caution: Some risk of contamination from disease causing bacteria                     |
| Dirty                       | 201-500  | Warning: Medium risk of contamination from disease causing bacteria                   |
| Very Dirty                  | 501-1000 | Danger: Medium to High risk of contamination from disease causing bacteria            |
| Filthy                      | > 1000   | Danger: High risk of contamination from disease causing bacteria                      |

## 2 Preparing the Treatment:

- **Calculate Dosage:** Determine the accurate dosage of Safrax® chlorine dioxide based on the water volume and desired PPM level. For a more contaminated water source, you may require a higher PPM level.

## 3 Treating the Water:

- **Application:** Slowly apply tablets directly to the tank. The instant chlorine dioxide will mix evenly throughout the tank.

Each Safrax® chlorine dioxide tablet weighs approximately 1 gram, with a potential variation of +/- 5%.





| Tank Size<br>/<br>Dosage | 2,500<br>Liters<br>-<br>660 US<br>Gallons | 5,000<br>Liters<br>-<br>1,320 US<br>Gallons | 10,000<br>Liters<br>-<br>2,641 US<br>Gallons | 20,000<br>Liters<br>-<br>5,283 US<br>Gallons | 30,000<br>Liters<br>-<br>7,925 US<br>Gallons |
|--------------------------|---|---|--|--|--|
| <b>0.1 PPM</b>           | Add<br><b>2.5</b><br>grams                | Add<br><b>5</b><br>grams                    | Add<br><b>10</b><br>grams                    | Add<br><b>20</b><br>grams                    | Add<br><b>30</b><br>grams                    |
| <b>1 PPM</b>             | Add<br><b>25</b><br>grams                 | Add<br><b>50</b><br>grams                   | Add<br><b>100</b><br>grams                   | Add<br><b>200</b><br>grams                   | Add<br><b>300</b><br>grams                   |
| <b>2 PPM</b>             | Add<br><b>50</b><br>grams                 | Add<br><b>100</b><br>grams                  | Add<br><b>200</b><br>grams                   | Add<br><b>400</b><br>grams                   | Add<br><b>600</b><br>grams                   |
| <b>3 PPM</b>             | Add<br><b>75</b><br>grams                 | Add<br><b>150</b><br>grams                  | Add<br><b>300</b><br>grams                   | Add<br><b>600</b><br>grams                   | Add<br><b>900</b><br>grams                   |
| <b>4 PPM</b>             | Add<br><b>100</b><br>grams                | Add<br><b>200</b><br>grams                  | Add<br><b>400</b><br>grams                   | Add<br><b>800</b><br>grams                   | Add<br><b>1200</b><br>grams                  |
| <b>5 PPM</b>             | Add<br><b>125</b><br>grams                | Add<br><b>250</b><br>grams                  | Add<br><b>500</b><br>grams                   | Add<br><b>1000</b><br>grams                  | Add<br><b>1500</b><br>grams                  |
| <b>10 PPM</b>            | Add<br><b>250</b><br>grams                | Add<br><b>500</b><br>grams                  | Add<br><b>1000</b><br>grams                  | Add<br><b>2000</b><br>grams                  | Add<br><b>3000</b><br>grams                  |
| <b>20 PPM</b>            | Add<br><b>500</b><br>grams                | Add<br><b>1000</b><br>grams                 | Add<br><b>2000</b><br>grams                  | Add<br><b>4000</b><br>grams                  | Add<br><b>6000</b><br>grams                  |
| <b>25 PPM</b>            | Add<br><b>625</b><br>grams                | Add<br><b>1250</b><br>grams                 | Add<br><b>2500</b><br>grams                  | Add<br><b>5000</b><br>grams                  | Add<br><b>7500</b><br>grams                  |

## 4 Post-Treatment Process:

- **Settling Period:** Allow the tank to sit for a period ranging from 5 minutes to 7 days, depending on the initial chlorine dioxide concentration.

This resting phase enables chlorine levels to drop below 0.03 PPM, making it safe for fish and other marine life.

- **Monitoring:** Continuously monitor chlorine dioxide levels throughout the settling period.

Example:

Location: Dominican Republic

Scenario: Preparing a sea water tank to receive **shrimp larvae**.

Tank Capacity: **5000 liters**

Initial RLU: **33**

Treatment Plan: Using Safrax® chlorine dioxide at a dosage of **0.1 PPM**, which equates to **5 tablets** of 1 gram each.

Observations:

1. **Within a few seconds** of treatment, the RLU level dropped to **15**.
2. **After a period of 5 minutes**, the RLU level dropped to **0** and chlorine dioxide was below **0.03 PPM**.

## 5 Introduction to Aquarium:

- **Verify Compatibility:** Before introducing the treated water into the main aquarium, ensure compatibility with the existing ecosystem.





**SAFRAX® IS THE PIONEERING COMPANY  
MANUFACTURING A READY-TO-USE CHLORINE  
DIOXIDE SOLUTION, HOLDING A PATENT SINCE 2011.**



**ECO-FRIENDLY**



100%  
Compatible with  
Organic culture

Available at:

**amazon**

**Walmart** 

**www.safrax.com**

SAFRAX Inc.  
8 The Green  
Dover, DE 19901  
Email: support@safrax.com  
Toll Free:  
1.855.888.CLO2 (2562) / 1.888.795.5888



UNITED NATIONS  
GLOBAL MARKETPLACE

AUTHORISED SUPPLIER  
NUMBER: 873938