

## **Water treatment using the Balling light method**

The well-known and popular Balling method is an extremely simple method for providing your aquarium with calcium, magnesium, carbonate hardness and trace elements.

In Germany this method has practically replaced the previously popular calcium reactor. An increasing number of marine aquarists also use our Balling salts with a calcium reactor in order to be able to manually adjust chemical imbalances, such as those that can occur when operating such a reactor.

To provide an optimal supply for a marine aquarium these substances are added daily by hand or by a dosing pump.

Strong lighting, stony coral husbandry and special bacterial systems have changed the water chemistry requirements, which made it necessary for the methods used to be adapted.

For this purpose we have developed a new Balling method approach and adapted it to the present conditions of modern reef aquaristics.

However, we can also provide you with instructions for the traditional method - the corresponding calculators and manuals can be found on our website.

Our salts comply with pharmaceutical purity levels and are packaged accordingly in a protected manner.

In our salts we use additional bioactive stabilisers, pH buffers and special minerals which significantly increase the stability of the chemical parameters in the aquarium. The added trace elements are more stable in the solution and are thereby more accessible to the coral. The supply of bioactive components prevents the coral from darkening and enhances its growth and colouration.

Fauna Marin Balling salts are simply beyond comparison!

The following water values should be produced during continuous operation.

Calcium	380 – 420 mg/litre
Magnesium	1200 – 1350 mg/litre
Alkalinity	6.5 – 8 dKH
Salinity	33 – 35 per mil

## **Instructions for the Balling light method**

### **1. Our Balling light method**

Three 5-litre canisters are to be prepared separately

#### **1st canister:**

Dissolve 2 kg of calcium chloride dihydrate in 4 litres of osmosis water and then fill the canister with osmosis water.

**! Caution !** Always add the salt to the water - never vice versa!

Then add

- 25 ml Trace B heavy metal complex
- 25 ml Trace B strontium / barium complex

to the canister.

#### **2nd canister:**

2 kg of magnesium chloride hexahydrate in 4 litres of osmosis water and then fill the canister with osmosis water.

The new method does not require magnesium sulphate as it precipitates extremely quickly and thus does not make sense.

Then add

- 25 ml Trace B iodine flour complex

to the canister.

#### **3rd canister:**

Dissolve 500 g of sodium bicarbonate in 4 litres of osmosis water and then fill the canister with osmosis water.

Nothing else is added to this canister!

Larger canisters can also be used; you will simply need to extrapolate the quantities added for each canister

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TIP:

Use lukewarm water to dissolve the carbonate.

A small residue will always be left over in this canister. However, this has no effect on the stability of the solution.

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A slight discolouration of the solutions is normal and is due to the addition of bioactive substances and trace elements. This has no impact on the quality or stability of the solutions.

After dissolution the solutions can be stored indefinitely.

The three canisters are now connected to an appropriate dosing computer via 4/6 mm PVC tubes.

We recommend using the GHF SA 3 series dosing computer or the corresponding model for the Profilux aquarium computer.

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Tip:

Drill a small hole into the lid of the canister and insert a 4 mm PVC rod all the way down into the canister. Then connect the rod to the 4/6 mm tube.

You can then use the entire contents of the canister.

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Depending on the content of the aquarium the individual solutions are now metered manually in order to determine the actual requirements.

Before doing this determine the current water values and make a note of the results.

Example:

50 ml of canister 1 into a 500 litre aquarium.

Value before dosing = 380 mg of calcium. After 2 hours repeat the test → the calcium value after the 2nd test is then 400 mg of calcium.

In this example 50 ml of the solution from canister 1 increases the calcium value by 20 mg/litre for a 500 litre aquarium.

Now programme the dosing computer to add 7 ml of the solution once a day, i.e. 50 ml of the solution spread over a week.

After a week measure the calcium value again and note it has only risen to 390 mg/litre, although in a pure arithmetic sense this should have risen to 400 mg/litre.

This method determines the actual loss of calcium in the system that is to be compensated. In some cases this actual loss may differ significantly from the calculated loss as a result of growth or chemical precipitation!

You can now easily adapt the dosage level by increasing the value by 3 ml per day as already calculated.  $50 \text{ ml} \rightarrow = + 20 \text{ mg} / 7 \text{ days} = 7 \text{ ml}$

In order to obtain + 30 mg therefore  $75 \text{ ml} / 7 \text{ days} = 10 \text{ ml}$  must be added.

Using this simple 3-part calculation you can easily adjust each of your desired values and set an automatic dosing schedule in just a few days.

A daily inspection of the calcium (Ca TEST), magnesium (Mg test) and dKH values (KH test) is to be conducted at the start and the dosing quantity adapted on the device if necessary.

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**TIP:**

We recommend you verify your water tests with the reference solution from Fauna Marin. We can also provide you with an exceptionally accurate KH test for marine aquariums.

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The GHL dosing computer is extremely suitable for this application, as each channel can be individually adjusted and the substances can be dosed at 5 minute intervals twice per day.

After no more than 2 weeks you will have determined the specific requirements for your aquarium and set the dosing unit accordingly.

Mineral salts can be added by hand, however this is not essential with regular water changes of 10% per week, as a good branded mineral salt will adequately cover the mineral salt requirements.

Relinquishment of the mineral salt in the Balling light method can be explained not only as a result of the regular water exchange, but also as a result of the generally too-high quantity of dissolved trace elements in our aquariums.

Therefore, the often mentioned 'ion displacement' factor is only applicable based on theoretical consideration of the Balling method.

The regular exchange of water helps your system to dilute unwanted substances and it makes it very easy to adjust and control salinity levels.

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**TIP:**

Please measure the salinity of your aquarium on a regular basis and adjust the level if necessary. To do this use a refractometer (regularly calibrated) or a high quality aerometer, e.g. from Tropic Marin.

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Naturally, the system is also suitable for manual dosing.  
To do this add the solutions to a well-circulated area of the tank.  
There should be an interval of approx. 10 minutes between the individual doses.  
Start by adding magnesium, then calcium and carbonate.

We hope you have a lot of success using this new method.  
We would be pleased to answer any queries you may have.

You can contact us at

[info@faunamarin.de](mailto:info@faunamarin.de)

or find us in the major forums at

[www.meerwasserforum.info](http://www.meerwasserforum.info) or

[www.ultimatereef.net](http://www.ultimatereef.net) or

[www.reefcentral.com](http://www.reefcentral.com)