



Instructions

The method according to H.W.Balling is a technically mature procedure, tested and proven a thousand times, to resupply your sea water aquarium with the used-up calcium and hydrogen carbonate ions at a low cost!

This elegant and easy-to-use procedure was published by Hans-Werner Balling in 1994 in the technical journal on aquaristics, DATZ (Die Aquarien und Terrarien Zeitung): Balling, H.-W. (1994), Kalkwasser für das Riffaquarium. DATZ 08: 523-525

To use this method, you require the following components:

1. Test kit for calcium and magnesium, as well as a KH test kit
2. A refractometer or a spindle to determine density and/or salinity
3. A scale with 1-2 gramme precision
4. Food-safe canister for the solutions. 5-litre cans have proven to be useful.
5. A calculator that can determine the necessary quantity of the salts. You can download it at www.matuta.de under method of H.W.Balling.

To increase the calcium content you require:

- TIMO Calcium: calcium chloride dihydrate
- TIMO Carbonate: sodium hydrogen carbonate
- TIMO Salt pure: sea salt without sodium chloride

To increase the magnesium content you require:

- TIMO Magnesium 1: magnesium chloride hexahydrate
- TIMO Magnesium 2: magnesium sulphate heptahydrate

All these salts are available at www.matuta.de under the heading method of H.W.Balling.

Measure the carbonate hardness (KH) as well as the magnesium and calcium contents of the tank water. If the carbonate hardness is over 10, one should not add any TIMO Carbonate until the balance is restored and the KH is at 6 - 8.

Magnesium and calcium values are entered into the calculator – together with the net content of the aquarium in litres and the values to be achieved (optimal Mg content approximately 1330 mg, optimal Ca content approximately 420 mg).

The required quantities of TIMO Magnesium 1, magnesium chloride hexahydrate, and TIMO Magnesium 2, magnesium sulphate heptahydrate, to increase the Mg content are now weighed and can now be dissolved in water in one container – ideally osmosis water, or also desalinated water.

On the contrary, TIMO Calcium, calcium chloride dihydrate, and TIMO Carbonate, sodium hydrogen carbonate, have to be dissolved und stored in separate containers.

The solutions should be added separately at different times in the seawater aquarium. The addition should be done daily in small batches either by hand or very conveniently with an automatic dosing system.

Apart from calcium and hydrogen carbonations, chloride and sodium ions are also added to this method, which is a simple saline.

It is not consumed, so it accumulates slowly in the sea water aquarium. The increase in salt content is the result. To prevent this, TIMO Salt pure - sodium chloride free sea salt can be used. This is best done with a water change.

Therefore, after the consumption of the solutions, ie after a week, a water change - typically 10% of the aquarium contents - should be done. Here, a part of the required sea salt is replaced by the amount of TIMO Salt pure. The online calculator is a great help to find the right dosage.

To eliminate faults, regularly check the salt content with a high-quality hydrometer or a refractometer.

On the next day the KH, MG and CA values are determined again. The new values are entered into the online calculator and new solutions are made.

Once opened, the TIMO-products should be re-sealed and kept in a dry place.

Remark:

- The magnesium value should be raised first because it helps to stabilize the calcium value. As a rule, this value, in contrast to the calcium value, lasts for an extended period of time and therefore does not need to be raised weekly.
- The water change is a crucial element of this method and must not be neglected.
- Equally important is the regular measurement of the values. In no case should be dosed "blindly" - an excess can do more damage than not enough.

TIMO Calcium, calcium chloride dihydrate, is an irritant and care should be taken to prevent it from getting into your eyes or respiratory tract. Keep this chemical out of reach of children.