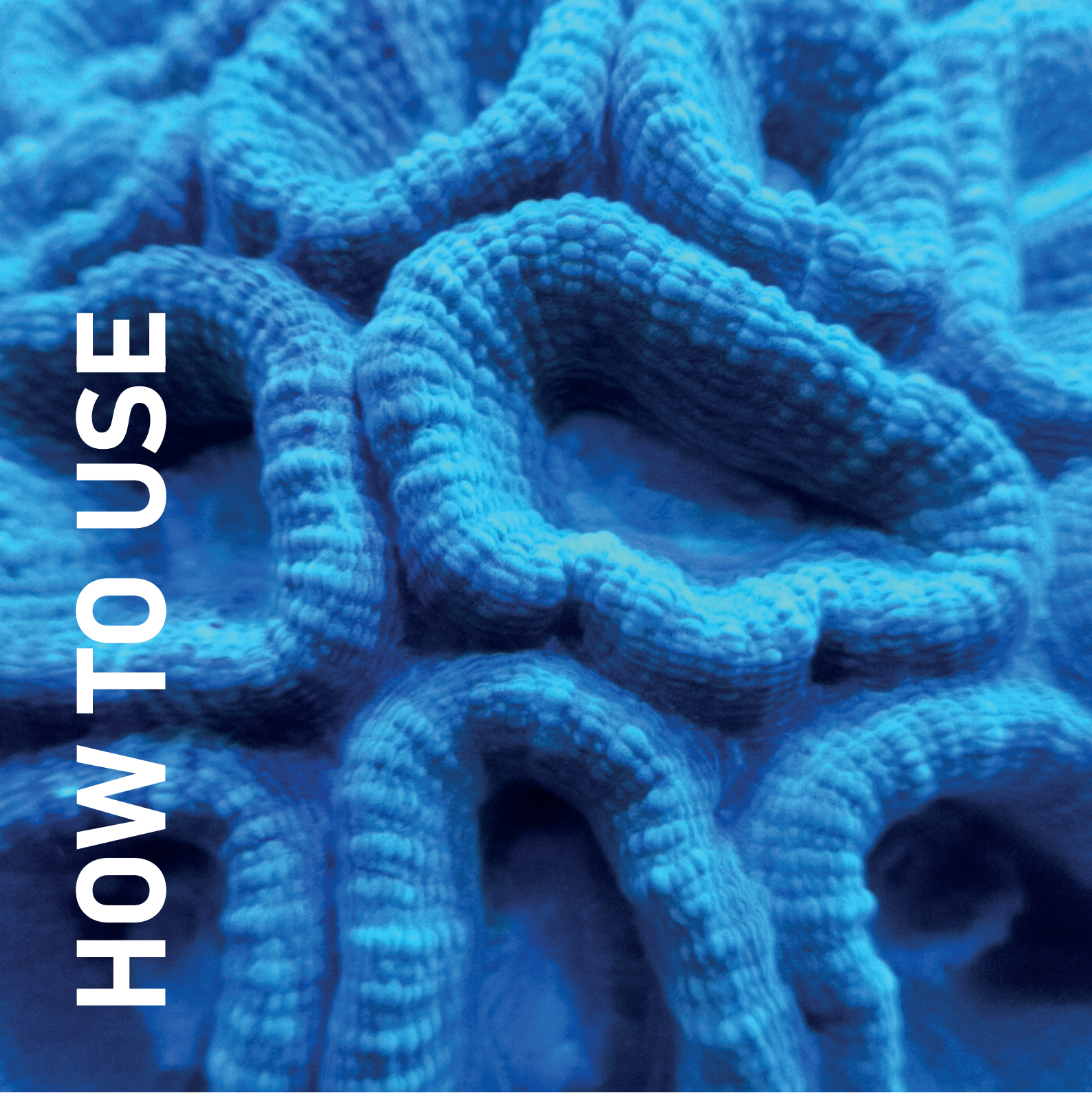




HOW TO USE

Base Element

by Turtle System[®]

HOW TO USE Base Element

Overview

Carbonate—often referred to simply as KH—and calcium are the two fundamental components of the coral skeleton. The calcification process, carried out by all corals with a skeleton, consists of combining these two elements, dissolved in water in their ionic forms, to produce calcium carbonate.

These two elements are continuously consumed from the water, and it is essential to compensate for this decrease daily to maintain consistent water quality.

A Simple Solution

For decades, marine aquarists have been developing various systems to maintain the stability of these elements. Turtle System BASE ELEMENT addresses this issue in the simplest and most practical way possible: one component per element to be dosed daily, either manually or using dosing pumps.

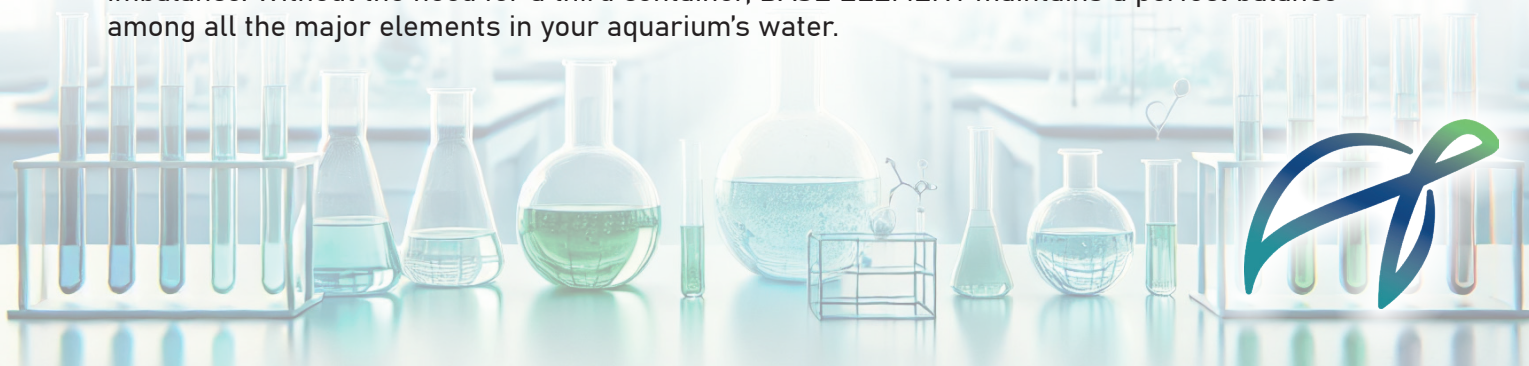
It is also through the simplicity of its final composition that this product stands out from other competing solutions. Our product contains only the elements essential for maintaining these two fundamental parameters, while preserving the overall ionic balance of seawater.

Maintaining Ionic Balance

Although products have long existed to independently raise calcium and KH levels, the laws of chemistry impose an unavoidable side effect that must be compensated for: an increase in salinity. Each product contains, respectively, chloride and sodium—that is, pure salt once both are added to the aquarium.

This increase in salinity can easily be compensated for by regularly removing a small amount of seawater from the aquarium and replacing it with reverse osmosis water. In aquariums with low or moderate consumption, this compensation generally occurs naturally thanks to the water removed daily by the protein skimmer. While this regular action helps maintain stable salinity, it nevertheless poses a problem: all the many chemical components of seawater are also removed, and their concentrations gradually decrease.

To avoid this phenomenon and maintain perfect balance, BASE ELEMENT contains, in the correct proportions, magnesium, sulfur, and potassium, which are the main elements affected by this imbalance. Without the need for a third container, BASE ELEMENT maintains a perfect balance among all the major elements in your aquarium's water.



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Product Advantages

While many similar solutions are available on the aquarium market, BASE ELEMENT stands out through its unique characteristics.

Equipment Savings

Unlike a traditional Balling system, regardless of its concentration, BASE ELEMENT requires only two dosing pump channels to achieve the same results. This frees up one channel for other uses.

Ready-to-Use Solution

Due to its specific formulation, BASE ELEMENT is chemically more complex than a standard Balling solution. Its preparation cannot be carried out at home and requires proper laboratory equipment. This controlled production process guarantees a consistent composition—far more precise than what could be achieved with a measuring cup and kitchen scale! It is therefore delivered ready to use: open the cap, connect it to your dosing pump, and you're ready to go!

Maximum Concentration

To ensure maximum efficiency and cost-effectiveness, our product is concentrated to the highest level that is chemically possible. Thus, 2×1 L of BASE ELEMENT is equivalent to 3×4 L of standard Balling solution.



Beneficial Effect on pH

Formulated with sodium carbonate, BASE ELEMENT Solution B helps raise the pH of your aquarium and stabilize it at a higher level—ideal for optimal coral health and growth.



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No Trace Element Cocktail

For over a year now, the NWC protocol for customized trace element maintenance has demonstrated a fundamental point: every aquarium has a unique consumption pattern of trace elements, depending on its specific coral population. Therefore, all pre-mixed trace element blends found in competing products are unsuited to your aquarium's particular needs. They can only lead to two possible outcomes:

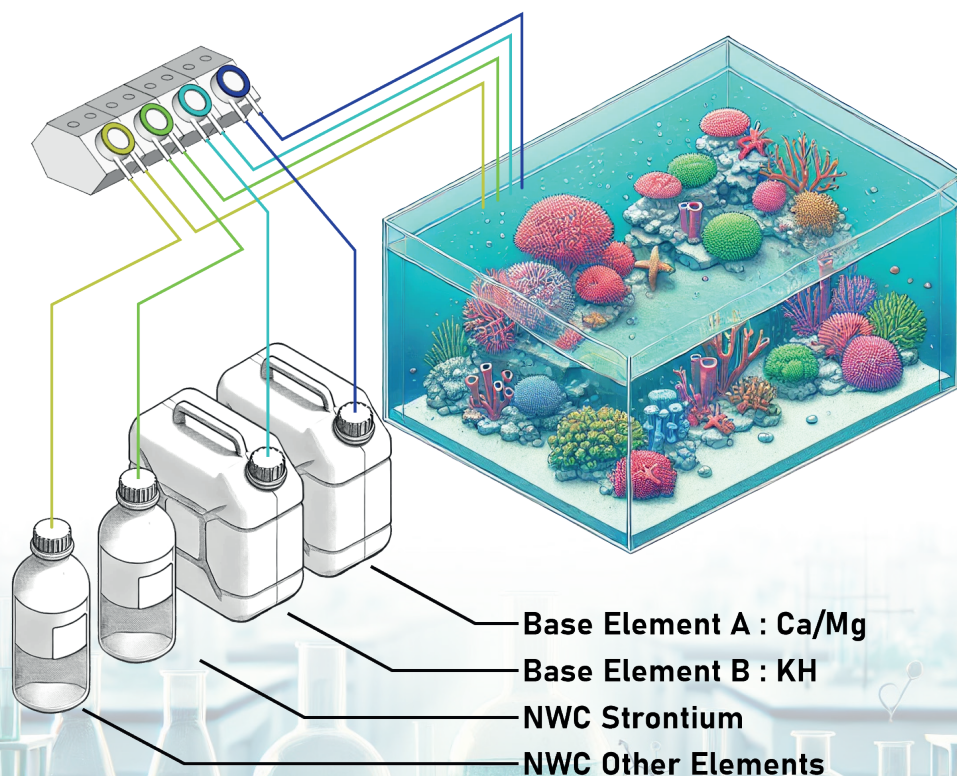
- At best, deficiencies in certain elements, preventing your corals from reaching optimal health and full coloration.
- At worst, significant overdoses, which can lead to serious problems!

For this reason, we have deliberately chosen not to include any trace elements in our solution. The addition of these elements should instead be done through a dedicated and safe complementary system.

Perfect Compatibility with the NWC Protocol

Ideally, to ensure a stable and consistent composition of your aquarium water, BASE ELEMENT should be used in combination with the NWC protocol.

BASE ELEMENT requires two dosing pump channels. The NWC protocol, in its ideal configuration, also requires two dosing pump channels. This means both methods can be applied using a standard 4-channel dosing pump, which is the most commonly available equipment. By combining these two systems, you get the most advanced and precise solution on the market for managing your aquarium's water chemistry.



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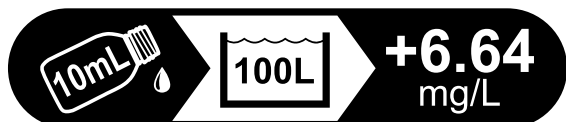
The Products

BASE ELEMENT consists of two distinct solutions designed to be dosed together, in equal amounts. The dosage of each product is based respectively on your aquarium's KH and calcium consumption. The elements responsible for maintaining ionic balance—magnesium, sulfur, and potassium—are distributed between the two solutions according to their chemical compatibility with the main element of each.



Solution A : Calcium

Dosage corresponding to the maintenance of calcium levels :



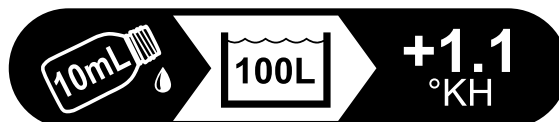
Composition :

Purified water, Calcium chloride dihydrate, Magnesium chloride hexahydrate.



Solution B : KH

Dosage corresponding to the maintenance of KH levels :



Composition :

Purified water, Sodium carbonate, Sodium sulfate, Potassium chloride.



Base Element

Method Compatibility

BASE ELEMENT is compatible with all reef aquariums housing corals and requiring daily supplementation of KH and calcium. There are no contraindications with any maintenance method—Berlin, Jaubert, with or without a protein skimmer, etc.

Dosing Principle

If you wish to calculate the required dosage for both products manually, the protocol remains identical to that of a traditional Balling method:

- Start by testing your aquarium's calcium and KH levels at a specific time of day.
- Do not add any product, and repeat your tests exactly 24 hours after the first measurement.
- You will notice that the levels have dropped—subtract the second readings from the first ones. The differences correspond to your aquarium's daily consumption of KH and calcium.
- Then, using a simple rule of three, calculate the corresponding dosage of each product needed to compensate for this consumption, and distribute the dose as evenly as possible throughout the day.
- Repeat this process weekly to fine-tune the settings and monitor variations in your aquarium's consumption over time. These values generally increase gradually as corals grow, but can drop suddenly in case of ecosystem issues.

Always make sure to spread the dosing of both products as evenly as possible during the day.

Do not dose both products at the same time—allow at least a 15-minute interval between each to prevent any precipitation reaction.

Never immerse the ends of the dosing tubes in the aquarium water, as this would inevitably cause the formation of a precipitate plug that could quickly block your dosing pump outlet!

For greater simplicity—and far less math—use our next-generation automatic calculator available on our website! Head to the following page...



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Using the automatic calculator :

Creating an aquarium :

Before anything else, you must create an account on the website www.turtle-system.fr and log in.

The aquarium on which you wish to use our products must be created on the site. To do this :

- Go to your customer area by clicking the “My Account” link in the main menu,
- On this page, under the title “Add an Aquarium,” enter a name to identify your aquarium and specify its water volume,
- Finally, click the “Add Aquarium” button.

Once created, your aquarium will appear in the “My Aquariums” section just above. You can create as many aquariums as you wish.

If you have already created your aquarium for the NWC protocol, you can of course use the same aquarium for the Base Element calculator.

Using the calculator :

Now go to the automatic calculator page, accessible via the menu “Protocols and Calculators” then “Base Element Calculator”, or directly via this link : <https://turtle-system.fr/en/base-element-calculator/>

Select your previously created aquarium from the dropdown list, then choose one of the following three tabs, which are described on the next page :

- **Base Element Calculator,**
- **Undo last calculation,**
- **Conversion from another « Balling ».**



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« Base Element Calculator » Tab » :

This first tab, which you will use most frequently, allows you to start from scratch with our products and adjust your dosages at any time. Unlike calculators offered by competitors, this one stores your information for reuse with each new calculation, providing a true long-term tracking system for your aquarium.

Fill in the requested information :

- The target values are the levels you wish to achieve and maintain. These are pre-filled with our recommended values, but you can modify them if desired. After the first use, a simple click on the “Retrieve My Custom Target Values” button will restore the last values you entered. You can modify them at any time.
- Enter the date and time when your tests were performed,
- Enter your test results, then click the “Calculate” button.

The calculation result and instructions will then appear on-screen and will also be sent to you by email. From the second use onward, a tracking graph will be displayed, allowing you to monitor the evolution of your dosages over the past months.

« Undo Last Calculation » Tab :

This tab allows you to cancel the last calculation performed. Simply click the “Erase Last Base Element Calculation” button to proceed. **Please note: this action is irreversible — once deleted, the calculation will be permanently lost!**

« Conversion from Another Balling Method » Tab :

This tab allows users of another method to switch to the Base Element method based on their current dosages. **It is only used during the initial setup.** To carry out the transition :

- Select the method you are currently using,
- Enter your daily dosages for the products corresponding to calcium and KH additions (any dosage of a third NaCl-free salt or magnesium solution does not need to be included),
- Then fill in the same information as in the “Base Element Calculator” tab.

The equivalent Base Element dosage will then be provided, after which you can continue using the standard calculator tab for all future adjustments.



Turtle System[®]

**is at your disposal to assist you
in implementing this method.**

If you encounter any difficulties or have any questions,
please don't hesitate to contact us through the usual channels :

[Facebook Page TURTLE SYSTEM](#)

or by E-mail :

contact@turtle-system.fr

You can also join the Turtle System support group on Facebook for community assistance :



**NWC Protocol
Turtle System
- Entraide**

