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## **FAUNA MARIN** **PO<sub>4</sub> Heat Test by C. Schuhmacher**

Easy-to-follow method for finding the amount of  
PO<sub>4</sub> deposits present in reef aquariums





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Over 20 years ago, Fauna Marin developed a method that would help aquarists gain a better understanding of their aquarium's total phosphate content. Since 1995, Fauna Marin has performed over 20,000 PO<sub>4</sub> heat tests. With a better understanding of the PO<sub>4</sub> depot activity, aquarists today can make more calculated adjustments to their current maintenance routine.

When it comes to Phosphate (PO<sub>4</sub>) and Phosphorus (P) in the aquarium, one must first understand that PO<sub>4</sub> and P are not only stored within the water column. PO<sub>4</sub>, P, minerals, and nutrients can be absorbed by decorative rock and substrate surfaces. It can even have an impact on everyday chemical-physical processes of the aquarium. More importantly, these compounds can also get absorbed by trace elements and organic compounds.

The purpose of the PO<sub>4</sub> Heat Test is to help aquarists gain a better understanding of the amount of deposits trapped inside calciferous surfaces. By using this method, aquarists can see the depot factor of their aquarium and take action sooner to prevent an over-accumulation of surface-bound P and PO<sub>4</sub>.

#### **Commercial PO<sub>4</sub> test kits can only measure one part of phosphate - Orthophosphate (PO<sub>4</sub><sup>3-</sup>).**

Modern laboratory test systems such as ICP systems, measure the total Phosphorus (P) content of water. Given that commercial test kits only test for Orthophosphate, these results only give aquarists a partial understanding of their aquarium's total (P) content. In rare cases, both values of total Phosphorus and Orthophosphate are the same. For this reason, when aquarists test with commercial test kits, their results may differ greatly from a laboratory analysis.

When interpreting the test results from your commercial kit and a laboratory analysis, you can see how much of a difference there is between each result. **This information helps aquarists understand how much their test kits are not measuring.**



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## **PO<sub>4</sub> Heat Test by C. Schuhmacher**

**The PO<sub>4</sub> heat test is a unique testing method that can be used alongside any commercial PO<sub>4</sub> test kit. This method requires no additional tools and can be performed at home**

In order to proceed, you will need a commercial PO<sub>4</sub> test kit.

We recommend testing with our AQUAHOMETEST PO<sub>4</sub> Test kit. Please do the following:

- Take a 0.2 l (200 ml) sample of aquarium water; use a glass cup.
- Place the sample in the microwave and heat the water to near-boiling temperatures (94 – 96°C or 201 – 204°F), then wait 4 minutes for water to cool.
- Take a water sample from this glass cup, then let it cool to room temperature.
- Perform your PO<sub>4</sub> test using this room temperature water sample and compare your results with the standard test method.

Example:

Result **w/ heat test** (0.08) ÷ Result **w/ standard test** (0.04) = **Depot factor** (of 2)

### **EXPLANATION OF THE DEPOT FACTOR**

#### **DEPOT FACTOR OF 1 – 1.75**

→ The aquarium has little to no PO<sub>4</sub> deposits stored in the water.

#### **DEPOT FACTOR OF 1.8 – 2.2**

→ Elevated PO<sub>4</sub> deposits are present. We recommend slowly changing your substrate with natural coral sand and also adding activated carbon such as CARB L. If necessary, reduce PO<sub>4</sub> with PHOS 0,04, ULTRA PHOS, or POWER PHOS.

#### **DEPOT FACTOR ABOVE 2.2**

→ At these levels, aquariums typically start having cyano problems and issues with undesirable algae. We recommend our REEF ICP TEST TOTAL service for thorough analysis of your water quality.



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The outcome of the calculated depot factor does not mean that this value will always stay the same. Through the everyday processes of the aquarium, there will always be something adding to the accumulation of deposits. Instead of focusing on getting the depot factor as low as possible, we recommend maintaining a stable depot factor between 1 – 1.75.

With regular PO<sub>4</sub> tests and the heat test method, you can gain a better understanding of how much PO<sub>4</sub> deposits the aquarium usually holds.

If you have a high depot factor, please contact us for further advice. We know the composition of aquarium deposits and have the necessary experience to give you the appropriate advice for your aquarium.

For further information or individual advice, please contact us directly on our Support forum:

**<http://forum.faunamarin.de>**

For more information on corals and our products, please visit our website:

**[www.faunamarin.de](http://www.faunamarin.de)**

Manuals and HTU guides can be found in our Download Center:

**[www.faunamarin.de/en/support-downloads/](http://www.faunamarin.de/en/support-downloads/)**

Wishing you much success!

Fauna Marin GmbH