

## Aqua-PHOS Fe TIPS & FAQs



### WHAT IS AQUA-PHOS Fe?

*Aqua-PHOS Fe* is one of a number of Granular Ferric Oxide (GFO) medias that have an ability to bind phosphates, silicates, arsenic and many heavy metals. Although these medias may all be based on the same chemical compound - **iron(III) oxide-hydroxide** - their specific properties will vary, depending on how they were produced. Their capacity to bind and absorb phosphate and other substances will depend on factors such as surface area, density and pore size of the media, which can all be influenced by the manufacturing process. This can be used to enhance a medias ability to attract one specific substance in preference to others.

So GFO medias are not all the same. Two similar looking medias can have vastly different characteristics with differing abilities to absorb phosphate or other ions. Unfortunately a number of the cheap medias currently marketed to the aquarium trade and on eBay were actually developed and optimised to remove arsenic from drinking water, phosphate removal was a subsidiary effect. Accordingly the performance of such medias in removing phosphates in the aquarium can be poor compared to those, like TheReef® *Aqua-PHOS Fe*, that have been specifically selected for their ability to absorb phosphates.

### HOW MUCH PHOSPHATE CAN AQUA-PHOS Fe ABSORB?

We hesitate to answer this as any answer risks being misleading. Tests conducted by the manufacturer show that *Aqua-PHOS Fe* can absorb 22g of phosphate (PO<sub>4</sub>) per kilogram of media. By way of comparison Rowa claim a capacity of 25g per kilogram for RowaPhos.

However, you should take all such statistics with a very large pinch of salt because these will be laboratory results conducted in freshwater without the presence of competing ions and contaminants. GFO medias like *Aqua-PHOS Fe* and RowaPhos simply will not work as well in saltwater, and will also absorb Arsenic, Silicates, Lead, Nickel, Copper and Zinc to a degree, while the presence of organics can also interfere with their performance. So a large part of a media's stated capacity to absorb phosphate will in practice be taken up by these other ions and contaminants. In the real world of an aquarium with livestock you will not achieve anything like this performance, particularly if it is a marine aquarium. However these figures do at least allow for some comparison.

### CAN I BOOST THE PHOSPHATE ABSORBING CAPACITY OF MY AQUA-PHOS Fe MEDIA?

Yes! As explained above, Granular Ferric Oxide (GFO) medias like *Aqua-PHOS Fe* also have affinities for heavy metals, silicates and some organics, as well as phosphate. So pre-filtering the water with carbon before it reaches the *Aqua-PHOS Fe* media can reduce these other pollutants and so extend the phosphate absorbing capacity of the media.

### HOW MUCH AQUA-PHOS Fe MEDIA SHOULD I USE?

In freshwater aquaria we recommend you allow between 50-75ml of media per 100 litres of system volume, and double this quantity in marine systems. Go towards the higher end of the scale if your system tends to be heavily stocked and/or fed.

### HOW MUCH FLOW SHOULD PASS THROUGH THE AQUA-PHOS Fe MEDIA?

This is critical! **The greater contact time between the media and the water the more effective it is.**

We therefore recommend a *maximum* flow of no more than 10x the volume of *Aqua-PHOS Fe* media being used. So if you are using 1 litre of *Aqua-PHOS Fe* you should have a flow of no more than 10 litres per hour (or 170ml per minute) through the media. The optimum flow is actually 1x, but somewhere between 1x and 10x usually seems to work fine. If you run *Aqua-PHOS Fe* media with more than 10x flow it will still work, but not as well, and you should expect to see a drop off in performance.

A further benefit of using slow flow rates is that changes to phosphate levels occur gradually, which avoids the risk of shocking corals and other livestock with sudden changes to water parameters.

### **COULD I RUN MY AQUA-PHOS FE MEDIA IN TANDEM WITH MY CALCIUM REACTOR?**

Yes, this can be an ideal way for marine aquarists to use it. The flow rate required for a calcium reactor is usually quite low and around an appropriate rate for the volume of *Aqua-PHOS Fe* media you'd typically use. Many marine aquarists arrange it this way - running the water through a couple of pods that are filled first with *Aqua-CARB* carbon and then *Aqua-PHOS Fe* before feeding the calcium reactor.

### **WHEN SHOULD I REPLACE THE MEDIA?**

Assuming you are running the media at the recommended flow rates then there should be no phosphates detectable in the water leaving the reactor. If you can detect phosphates then this indicates that the media is becoming exhausted and should be replaced.

### **WILL THE MEDIA RELEASE PHOSPHATE BACK INTO THE WATER WHEN EXHAUSTED?**

No. The phosphate will always remain bound to the media in the conditions normally found in aquaria.

### **CAN I RECHARGE AQUA-PHOS FE MEDIA?**

While theoretically possible, it simply is not worth the effort or expense in our opinion. But don't throw your old media away when it appears exhausted – it will probably still have some capacity left and can continue to passively absorb some phosphates, just very, very slowly. So leave it submerged in a bag in the sump for a couple of months before finally discarding it.

FOR MORE ADVICE ON PHOSPHATE CONTROL SEE OUR RELATED ['PHOSPHATE REMOVAL'](#) ARTICLE

