Possibilities of phosphate removal

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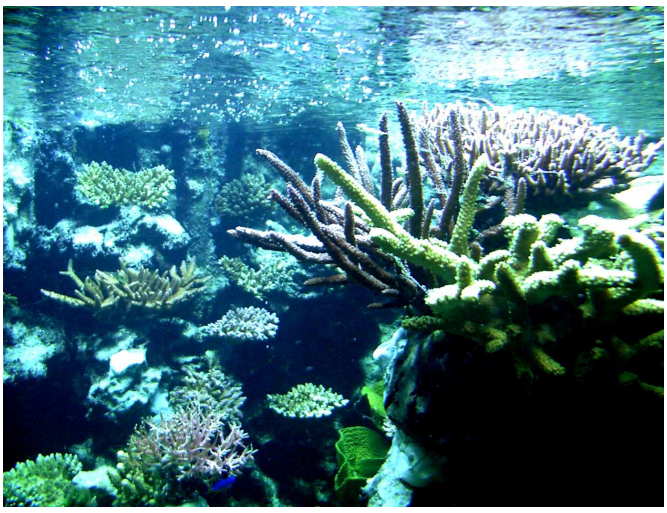
Phosphate (chemical formula PO4) is an important nutrient in marine aquariums. The concentration should be maintained between **0.05 and 0.20 mg/l PO_4**. In this interval most animals can prosper well.

Under this concentration range one speaks of **Ultra-P-Aquariums**. In these, the sessile animals (e.g. corals) must be supplied with additional phosphate, especially if the carbonate hardness is above 8°dH. The phosphate increase can be achieved by increased feeding with fish feed, food for filtering animals, substitute plankton and plankton. Alternatively, the phosphate concentration can be carefully raised with suitable care solutions.

However, there is usually **far too much** phosphate in the water. In order to successfully care for sensitive hard corals, the concentration must be reduced to the optimum. There are several ways to do this.

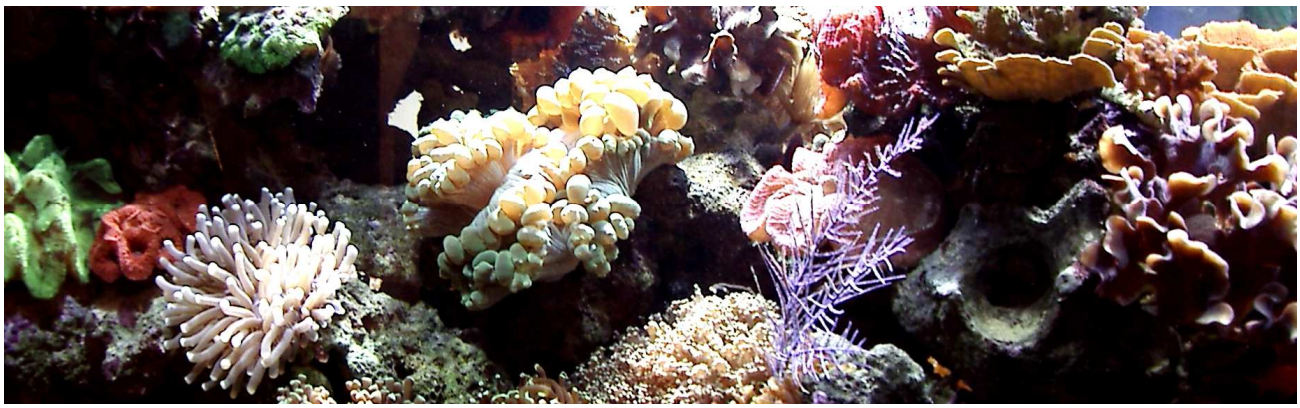
- More water change with phosphate-free water
- Use of a lime water reactor
- More phosphate consumers: corals, algae sanctuary
- mMore light so that the corals can consume more phosphate
- Reduction of fish stock
- Use of high-quality feed
- Use of precipitants (can lead to fish losses)
- Use of a fleece filter
- Use of a pellet filter (POC filter), in which the produced bacteria are removed from the aquarium
- Use of phosphate adsorbers:



AquaCare offers two different phosphate adsorbers:

1. 
The iron-based **phosphate adsorber** with an excellent price-performance ratio. This granulate should be used in the **upstream process**, i.e. the water flows through the filter from bottom to top without the granules moving. Before use, the material should be rinsed slightly to prevent discoloration of the water.

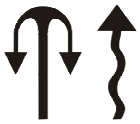
2. 
The special granulate **Phosphate-X-Globuli**. This high-tech product reduces the phosphate concentration without abrasion and discoloration. The material can be used in **fluidized bed or circulating filters** to prevent clogging and maximize efficiency. The material is absolutely dust-free due to the special manufacturing process. Lower phosphate values can be achieved than with simple phosphate adsorbers. As a "side effect", silicate is also removed from the aquarium water. In particular**, high-quality energy-saving pumps**, which are very sensitive to iron-based adsorber dust, play out the Phosphate-X-Globuli their full advantages.



Phosphate Adsorbing Filter

- removes excess phosphate
- great effectiveness
- simple and safe
- economical to use
- the optimum operating mode for the respective material can be selected

Technical data of the AquaCare Phosphate Adsorber Filter 50 - 100:

Type with simple Adsorber	**PO4-50**	**PO4-70**	**PO4-100**
Type with high-end Adsorber	**PO4-X-50**	**PO4-X-70**	**PO4-X-100**
Diameter in mm	50	70	100
Max. aquarium size in litre*, approx.	150 (220; 320)	190 (390; 580)	530 (920; 1350)
Max. flow for simple adsorber	11 l/h	20 l/h	43 l/h
Flow for high-end adsorber	22...30 l/h	40...55 l/h	86...119 l/h
Suitable pump (not scope of delivery)	aquabee UP300		UP500
Height in cm**	40 (70; 100)	45 (70; 100)	50 (70; 100)
Necessary height in cm	+5		
Useable volume in litres (moving bed)	0.5 (0.7; 1.1)	0.8 (1.3; 1.9)	1.8 (2.7; 4.1)
Footprint width × depth in cm	14 × 10	18 × 14	21 × 14
Total weight with filling (dry)	1.1 (1.6; 1.7)	1.9 (2.5; 3.3)	3.1 (4.1; 5.6)
Erection	Externally, in the filter sump, with Hang-On holder to the aquarium or filter basin, with wall brackets on a wall		
Operation mode with simple adsorber 	 **Upstream process**: the water flows from bottom to top, without moving of the material		
Operation mode with Phosphat-X-Globuli 	 **Fluidized bed processes:** the water flows from bottom to top so that the particles move. The vertical flow process (MF_2 only) is also possible		
Materials	PMMA (Acrylic glass), NBR, silicone, PVC, PA		
Connections: female thread - nozzle	G1/4" - 8 mm	PVC 20, nozzle 16	PVC 20, nozzle 16
Base model	MF_2 filter 50	PMMA filter 70	PMMA filter 100

* The maximum aquarium size has been calculated so that the material lasts for at minimum 8 weeks; smaller filters can also be used for large aquariums; the material must therefore be changed more often.

** special heights are possible

Technical data of the AquaCare Phosphate Adsorber Filter 150 - 300:

Type with simple Adsorber	**PMF-150**	**PMF-250**	**PMF-300**
Type with high-end Adsorber	**PMF-X-150**	**PMF-X-250**	**PMF-X-300**
Diameter in mm	150	250	300
Max. aquarium size in litre*, approx.	1.3 (1.9; 2.9)	7.6	4.0 (11.1; 18.2)
Max. flow for simple adsorber	100 l/h	300 l/h	430 l/h
Flow for high-end adsorber	205...285 l/h	590...820 l/h	860...1200 l/h
Height in cm**	50 (70; 100)	100	50 (100; 150)
Necessary height in cm	+5		
Useable volume in litres (moving bed)	5.8 (9.0; 13.7)	35	19 (52; 85)
Footprint width × depth in cm	31 × 22	37 × 30	52 × 40
Total weight with filling (dry)	7.1 (9.3; 12.6)	41	35 (57; 80)
	Externally, in the filter sump		
Operation mode with simple adsorber 	 **Upstream process**: the water flows from bottom to top, without moving of the material		
Operation mode with Phosphat-X-Globuli 	 **Fluidized bed processes:** the water flows from bottom to top so that the particles move. The vertical flow process (MF_2 only) is also possible		
Materials	PMMA (Acrylic glass), NBR, silicone, PVC, PA		
Connectors PVC unions	d25 mm	d32 mm	d40/50 mm
Base model	PMMA150	PVC250	PMMA300

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