

# Oyster Shells

the sure way to always keep KH and pH values under control



Oyster shells have an exceptionally stabilising effect on the KH value and consequently indirectly on the pH value. The KH value provides an indication of the water's carbonate hardness.

Air-Aqua supplies high-quality, clean and disinfected oyster shells.

Many people believe that if their tap water is somewhat harder they won't have any problems with KH and pH values. The KH to some extent acts as a buffer to the water's degree of acidity (pH). Fish, plants and the biological filter 'consume' water hardness (KH). If, for example, too little water is then changed during the winter period, the KH can quickly become too low. The KH value also drops quickly when there is too much rain. This affects the fish, because this can cause the pH value to drop steeply (referred to as the pH crash).

A pond's KH value generally is not measured regularly enough. Only when there are problems, and therefore too late, are there any interventions by adding remedies, such as KH+ powder. However, KH+ powder has a number of drawbacks:

- A lot of powder quickly disappears via the bottom drain/filter system
- Short-term boost effect; major fluctuations in water values
- The need for continuous measurements and adding powder

Oyster shells safeguard full KH and pH stabilisation over the longer term. The oyster shells only dissolve slowly once the KH drops and this way buffer the pH. Entirely independently of the quantity of rain, water changes or the seasons, the oyster shells automatically keep your KH up to par and the pH stable. Only once the oyster shells are virtually completely dissolved do you need to replenish them with new oyster shells. A rough indication of the quantity required is 1 bag of oyster shells for every 10 m<sup>3</sup> of water per year; the exact quantity is of course highly dependent on factors such as the ones described above.

Air-Aqua's oyster shells are supplied in a net so that they can be easily rinsed. The oyster shells have been washed with chlorine and are subsequently dried: this guarantees that they do not contain any harmful bacteria, moulds or pathogens. The shells are also highly suited for use as a biological filter medium in a trickle or multi-chamber system.



# Biofilter media

Air-Aqua supplies various types of filter media for various applications.

## AlfaGrog

AlfaGrog is a porous ceramic material: strong, durable and relatively light. AlfaGrog is pH neutral and does not react with other substances. Its high surface area makes it the natural choice for colonisation by micro organisms compared with other media.

AlfaGrog is available in 2 versions:

- E25: 90.000 m<sup>2</sup>/m<sup>3</sup>.
- E40: 45.000 m<sup>2</sup>/m<sup>3</sup>

As comparison: filter foam has a surface area of approximately 3,000 to 6,000 m<sup>2</sup>/m<sup>3</sup>. This makes AlfaGrog extremely low cost per m<sup>2</sup> of available surface area as only a small amount of material is needed for the same biological effect. This offers additional biofiltration capacity when there is less space for the biological component. AlfaGrog is extremely suitable for drum and multi chamber filter systems.



## Hel-X moving bed:

This type of media is kept moving via aeration in the filter; the so-called moving bed. This is often used in combination with a drum filter. It also provides excellent performance when used with a trickle filter. Air-Aqua offers this media in three different diameters: 11, 13 and 17 mm. The smaller the diameter, the greater the media surface area per m<sup>3</sup>.

- |       |    |                               |    |                                    |
|-------|----|-------------------------------|----|------------------------------------|
| 11 mm | -> | 450.000 pieces/m <sup>3</sup> | -> | 859 m <sup>2</sup> /m <sup>3</sup> |
| 13 mm | -> | 300.000 pieces/m <sup>3</sup> | -> | 767 m <sup>2</sup> /m <sup>3</sup> |
| 17 mm | -> | 150.000 pieces/m <sup>3</sup> | -> | 595 m <sup>2</sup> /m <sup>3</sup> |



Air-Aqua supplies white non-recycled moving bed media.

## SuperBio

SuperBio is an extremely open biofilter media made from sintered glass. Extremely light (floating) and therefore excellent for use in trickle filters and less suitable for drum and multi chamber filter systems. SuperBio has an extremely good price-quality ratio.



## LDPE Beads

Air-Aqua also supplies the beads that are used in the SuperBead as separate filter media. This filter media is also suitable for other bead filters. Beads have a large surface area of 1300 m<sup>2</sup>/m<sup>3</sup>.



## Grid tube

Grid tubes are mainly used to safeguard that filter media remain in the filter chamber. They are also often used as intake strainer cage for pumps installed in the pond, to ensure that coarse dirt particles do not end up in the pond. Intake strainer cages for such submersible pumps are often extremely small and quickly become clogged. The pipe supplied by us is suitable for moving bed media sized 13 & 17 mm in diameter.

Air-Aqua has 3 diameters available.

- |        |    |   |
|--------|----|---|
| 110 mm | -> | 1 meter length = 0.34 m <sup>2</sup> permeable surface area |
| 160 mm | -> | 1 meter length = 0.50 m <sup>2</sup> permeable surface area |
| 245 mm | -> | 1 meter length = 0.77 m <sup>2</sup> permeable surface area |



The grid tubes are easy to reduce and connect with a flexible coupling, or can be sealed off on one side with an end cap.