



Water and Air Filter Technology

A wide, horizontal band of blue water with white foam and bubbles at the surface, serving as a background for the company names.

Ingeplan S.A.S



Specially developed high-tech fibres are thermally connected with each other in layers. Each filter element consists of high-tech special fibres arranged in a specifically defined number of layers. Each layer alone offers a high degree of separation precision and three dimensional filtration while guaranteeing clean water.

## WHERE CAN BE USED AQUAFIB

can be used in large-scale systems as well as in small private aquariums. The installation of the filter is possible at any time and is easy and quick.

No retrofitting or adjustments required. AQUAFIB automatically adjusts to any filter housing and replaces all sand, glass ad cartridge filters.

## AQUAFIB

is the innovative, multiple award-winning polymer fibre filter, made in Germany.



### REPLACES



Cartidges



Glass

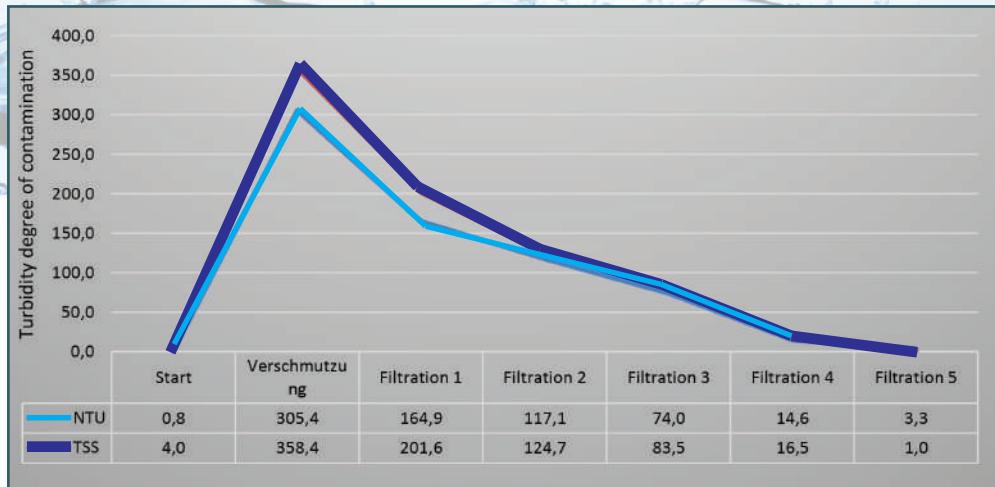


Sand



AQUAFIB  
can be used for all filter systems and is reliable, light, fast and clean.





1. Removal of organic and inorganic solids contamination through the environment or fish stock, leaves, pollen, algae, insects, exhaust, dust, fish excrements etc.
2. Increase of the efficiency of backwashing, conservation of energy, water and time.
3. Get pure, clean and crystal-clear water without interference of biology.
4. Reduction of micro-biological contaminations, such as germs, viruses, fungi and bacteria as well as nearly all contaminations in water and containment of the biofilm.



filters nearly all solid contaminations reliably and independent of water feed and flow rate. AQUAFIB offers maximum separation precision through



Filtration of fresh water, contaminated with solid particles sized 1 - 100 micrometre.

**Filtration:**

48.5 m<sup>3</sup>/m<sup>2</sup>/h - Filter □ 500 mm - Housing height 850 mm

**Yielded floating solid particles:**

Charcoal 10-100 microns – Arabicum < 10 microns – Aluminium powder < 50 microns as well as algae and further organic and inorganic substances dissolved in water in ratio 2 kg / 1000 l

**Testing means:**

Lovibond water testing device TB 300iR / Lovibond Photometer System MD 100

**System:**

LED interference filter and photosensor / Nephelometric (non-radio)

### The mechanical filtration

The pump pushed contaminated water into the filter boiler and then through the filter material. When doing so, solid materials are caught in the filter material and the cleaned water flows back into the basin.

AQUAFiB fibres do not build up resistance. In contrast to glass or sand, AQUAFiB filters completely without pressure in horizontal as well as vertical direction. This significantly reduces the energy costs, among other things.

### Adsorption

Adsorption is the collection on solid surfaces, such as activated carbon or zeolites. The more filter is saturated through adsorption, the more drastically its filter efficiency will decrease.

AQUAFiB Thanks for the very high separation precision and a mandatory flow direction through the filter, AQUAFiB guarantees the best possible filtration and dissolves adsorption quickly and reliably.

### Coagulation and flocculation

Very fine suspended and colloidal contaminants in water are combined to larger flocks using inorganic primary flocculation agents and polyelectrolytes. This is necessary to be able to remove them from the water with sand or glass media through sedimentation and/or filtration.

Due to the unique layer structure of AQUAFiB the addition of flocking agents is completely superfluous.

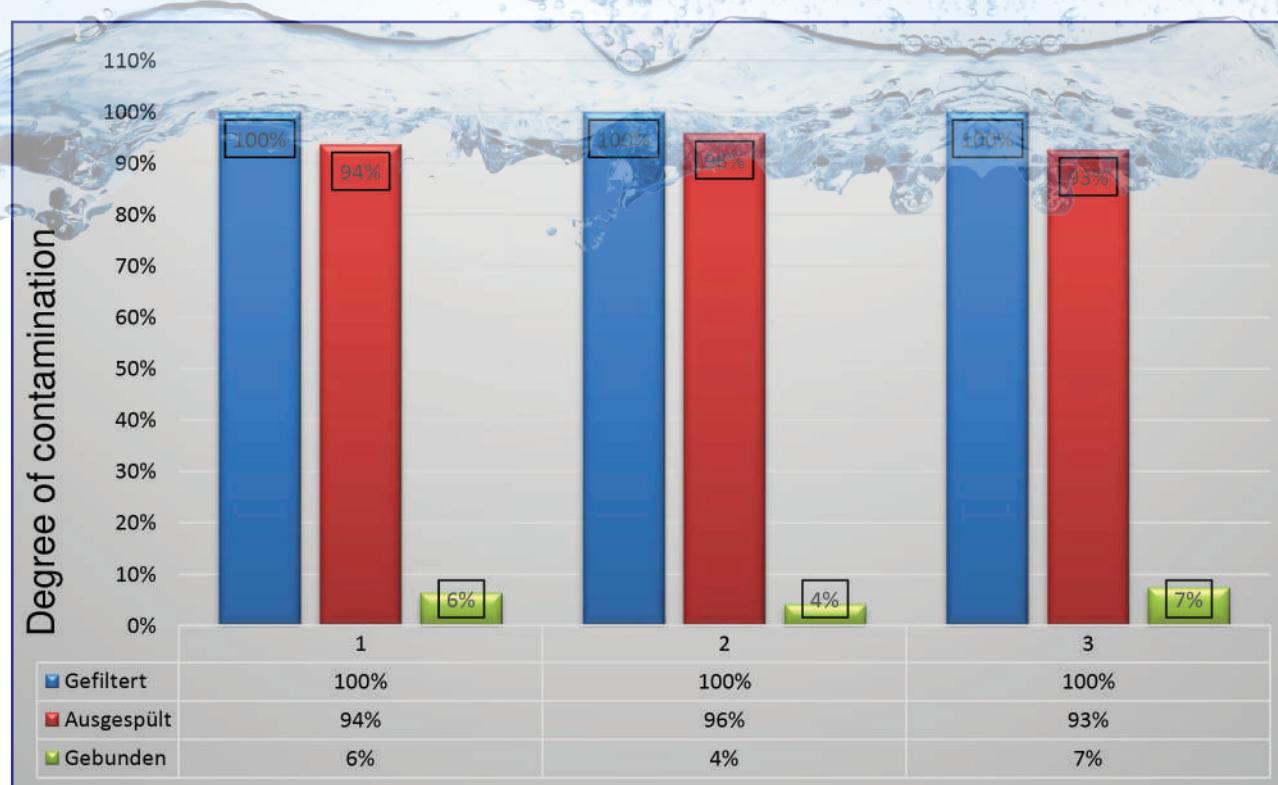
### Creation of biofilm

Sand and glass comminute organic solid particle contaminations, such as spiders, flies, ants etc. to microscopically small parts and promote the settlement of micro-organisms (fungi, viruses, bacteria and germs).

Warm water and rough surfaces are ideal for their growth. A biofilm is created. This process of "bio-fouling" reduces the filter performance, leads to agglutination of the filter material and thereby to the formation of guide currents.

Guide currents are highways, through which solid particle contamination and micro-organisms are guided nearly unfiltered. Other chemicals must then be used to stabilise the water.

AQUAFib segments do not permit guide flows and force the water to flow through the highly sealed filter segments. Insects are not crushed by rocks and glass but rather largely guided out through backwashing. This reduces the settlement of micro-organisms. And as a consequence, undesired bio-fouling is also decreased. A reduction in use of chemical agents is advantageous to health, saves money and supports the natural biology in the living environment water.



Flushed out solid particle contaminations with a backwashing time of 10 seconds

The 3D filter segments by AQUAFiB are ultra-light and permanently adjust to the flow characteristics in all directions in all filter containers. AQUAFiB does not agglutinate, does not allow for water to take detours and thereby ensures a high degree of filtering efficiency.



FILTER ELEMENTS

Backwashing without oxygen support is not sufficient to completely swirl up the filter material due to the high net weight with sand and glass filter material. Only professional plants, such as public swimming pools, have this technology of oxygen support. The largest part of the sand and glass filter material and/or the contaminants contained therein therefore remains in the filter housing in many cases. Through yielded contaminants, the filter material petrifies and agglutinates after a short period of time and prevents effective filtration. Guide flows form in the filter material, also referred to as bypasses. Since water always searches for the easiest path, it is primarily guided through guide flows and the majority of the material remains unfiltered.

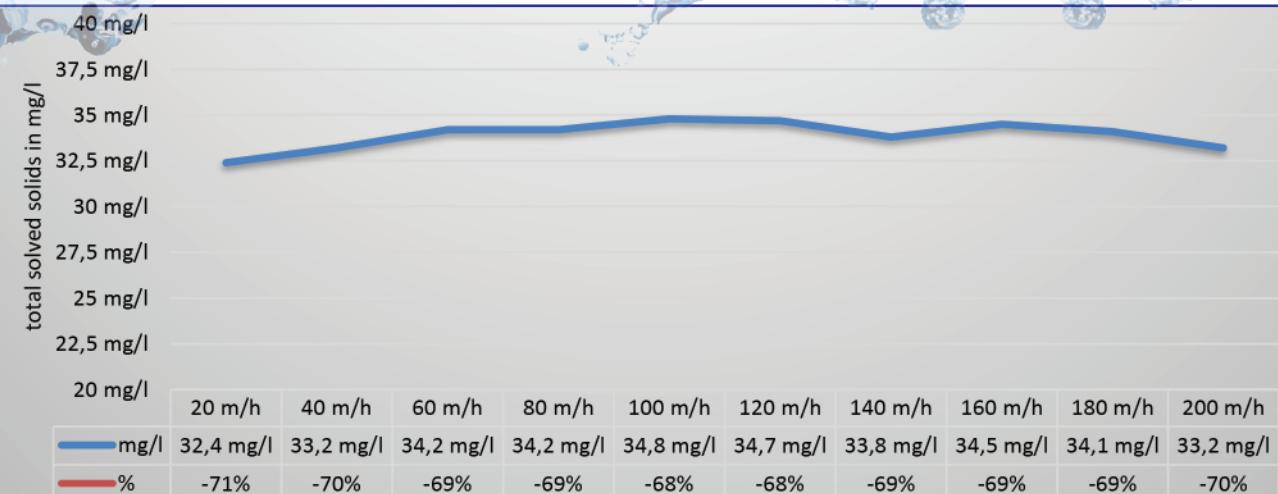
Before  
Cleaning



After  
Cleaning



Filtering result after one-time filtration with different flow rates at 1,000 l. extremely contaminated water (100 mg / l) and a particle size of 1-30 microns



The filter efficiency after only a single filter flow is absolutely consistent and presents best results, even in case of high flow rates



3 years on the market  
 -  
 4,000+ projects -  
 100% satisfaction  
 THANK YOU to our  
 customers worldwide



**AQUAFIB**  
 ingeplan S.A.S

After 1! Months of use of "AQUAFIB" in swimming pool operation of swimming pool Ilmenau, we can confirm the following properties of this filter material:

- the bacteriological quality of the pool water is harmless (Legionella),
- we judge the cleanliness of the water to be very clean and clear,
- the introduction of the Filter materials is compared to sand many times easier (cost \* and time savings),
- the consumption of flocculants and other chemicals was reduced by 86% with "PureFlow",
- The staff effort for the filter rinse has been reduced by 50%, since the frequency of the backwash cycles could be halved,
- By using PurcFlow Filter material, contamination in the surrounding area of the system and the associated cleaning effort could be almost completely avoided.

## Possible risks of filter sand and filter glass

Filter glass is made of recycled and broken glass. Fine glass splinters can be absorbed by the lung as well as through orifices, such as the eye sockets, nose and mouth.

- The backwash processes cause the filter glass to splinter.
- Sand and glass have a rough surface and offer the perfect settlement for micro-organisms. This leads to increased biofilm. (bio-fouling)
- Many different claims exist about how long filter material can be used. Supplier frequently advertise a utilisation period of several years. But the actual utilisation period does not depend on the cleaning efficiency but on the degree of contamination of the medium.
- Chemical cleaning and flocking agents must be added to be able to filter fine particulate matter below 30 micrometres. These chemicals impact the biology of the water and are also absorbed by the skin.
- Sand and glass make their way back to the basin, to the guide system and into the pump due to their size. Radiation damages on plastic GRP basins may occur. Fine kernels and splinters enter pipes, cut-offs, seals. This leads to damages, clogging, deposits and settlement of dirt. Consequentially, damages with sometimes very high repair costs may occur.
- Filter glass and filter sand are not completely flushed up during backwashing without oxygen support due to their high net weight. The mass of the material remains unmoved. Therefore, the majority of the contaminants remains in the filter. If that were not the case, sand and glass would be flushed out during backwashing. This effect requires multiple backwashing cycles and results in higher water consumption.
- It is difficult and complicated to integrate filter glass and sand, and they are equally cumbersome to remove

For hygienic and especially for health reasons, we do not recommend using filter materials over several years. The task of every filter is to absorb contaminants. These contaminants and the growth of germs represent a health risk. As does the permanent addition of chemicals to stabilise and treat the quality of the water. We recommend replacement of any filter material after each season.



Water and Air Filter Technology.



aquafibcol@gmail.com

CII 128b No 56b - 25

57 (1) 6130289

57 3158339153

**Ingeplan SAS,**

Bogota, Colombia

