Aquarium care according to nature

- Maintenance plan
- Water tests
- Water changes
- Filter maintenance
In the natural habitats of our ornamental fish, nature ensures optimal living conditions. In an aquarium we need to support the biological cycle with some maintenance.

Purification bacteria convert NO₂ into NO₃ (nitrate)

Fish consume oxygen, carbon dioxide (CO₂) is formed as a metabolism product.

Purification bacteria convert NH₄/NH₃ into NO₂ (nitrite)

In the natural habitats of our ornamental fish, nature ensures optimal living conditions. In an aquarium we need to support the biological cycle with some maintenance.

The equilibrium of “forces” in an aquarium

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NO₃⁻ = Plant nutrient

Plants consume CO₂

Purification bacteria convert NO₂ into NO₃ (nitrate)
Aquariums according to nature with sera – and your fish will do fine!

When keeping an aquarium, it is quite important to create the aquatic environment for your fish as they know it from nature. You will set the basis for this when setting up the aquarium. The water properties are easy to adjust if fish from the same natural environment inhabit the aquarium. If you keep fish from entirely different origins together, these will sometimes have entirely different water requirements. This will make aquarium care much more difficult.

Fish, plants and decoration will blend in fine if, for example, you set up a section from the Amazon region underwater world or from Lake Malawi. The fish require the same water composition, according to the biotope. These preconditions plus support by the sera water conditioners make aquarium care considerably easier. The fish will do well and usually live longer than in nature. This makes living with an aquarium really enjoyable.

sera has put together community aquariums from 9 different biotopes. You will find information on them on the Internet (www.sera.de) and on sera – The CD, which includes great films and computer aided aquarium design. sera – The CD allows you to design functioning aquariums from the very beginning.

Using the sera online laboratory ensures that aquarium maintenance will require little efforts. You will easily learn how to use water test kits and water conditioners. Also, you can at any time monitor the quality of your aquarium water and will immediately receive suggestions for improvement. You will find further information on this on page 18.
Daily care

Switching the light on and off
The lighting period should be approximately 12 hours. This is roughly the length of a tropical day. In case of algae problems you can reduce the lighting period to 8 hours, e.g. by switching off the light for some hours around noon. You can regulate the lighting time with an automatic timer.

Filter control
Also check whether filter and/or aeration work properly. Clean the filter media (see page 24 ff.) in case considerably less water flows out of the filter. The filter outlet should be directed in a way that the water surface is only gently agitated. This reduces CO₂ losses, thus creates better growth conditions for the plants and therefore reduces algae growth.

Temperature control
Modern aquarium heater thermostats work very reliably. Nevertheless it is recommended to have a look at the aquarium thermometer once a day so you can be sure everything is in order.

Water level control
Check the water level and replace evaporated water to make sure the surface skimmer remains in operation and the heater does not become dry due to too low water levels. Remove plant parts caught in the intake grid of an internal filter, or on the intake tube in case of an external filter, if the water flow is considerably affected.

Feeding
Feed your fish 2 – 3 times a day, but only as much as they will eat within short time. Feed nocturnal fish and bottom dwellers after dark. You will find more information on this on the Internet (www.sera.de) or in the sera guide “How to feed your tropical fish naturally”.
Weekly care

Water changes
Weekly water changes are by far the most important maintenance measure to support the biological equilibrium, especially in small aquariums. In larger or less densely stocked aquariums, partial water changes every 2 or 3 weeks are sufficient. Good preparation provided, a water change will take 15 – 20 minutes, depending on the amount of changed water. sera toxivec immediately detoxifies the water in case of suddenly deteriorating water quality (detailed information on page 7). You will find further information on how to change the water on page 19 ff.

Water test
You should check the most important water parameters once weekly. You will find further information on water tests on page 10 ff.

Plant fertilization
Plants provide important functions in an aquarium:
• Supplying the fish with essential oxygen
• Biological pollutant breakdown
• Shelter and territory markings for fish

sera has developed a special care system for optimal nutrient supply. sera florena is a liquid fertilizer with well-balanced nutrients for aquatic plants that take up their nutrients through the leaves. Being a depot fertilizer in tablet form, sera florenette A provides the plant roots with the correct nutrients for c. 4 weeks. Fertilize the plants once weekly with sera florena or with sera florenette A. In case the plants do not grow properly, e.g. after a transport or recent replanting, we recommend sera floreplus, the “turbo” among the fertilizers.

You will find detailed information about plant care in our sera guide “Feeding aquatic plants, according to nature” or on the Internet (www.sera.de).
Annual care

Replacing the fluorescent tubes
Among others, the correct light is essential for the growth of aquatic plants and for oxygen supply in the aquarium. Even if the fluorescent tubes still work, the radiation required for the aquarium biotope nevertheless loses intensity. Algae problems and plants not doing well are the visible effects of decreasing or wrong light supply.
If you use two tubes it is recommended to change the first one after 12 months, the second one two months later. Light conditions would change too suddenly if you changed both tubes at the same time.

Care as required

Accidental overfeeding
The food is still lying on the aquarium bottom an hour after you fed, without the fish being interested in it. In that case you definitely overdid it.

The following measures must be taken immediately:
Use the sera gravel cleaner to siphon the remaining food off (see directions for use for a detailed description), and change c. 15 – 30% of the aquarium water. Condition the fresh water with sera aquatan and sera nitrivec (see page 22 ff.) and check the water values.
Care as required

High pollutant levels?
The water tests reveal that pollutant levels are above the indicated maximum values. Possible causes are, among others:
• too many fish in relation to the aquarium size
• filter capacity is too low
• overfeeding

Quick help for the aquarium:
sera toxivec
• immediately protects ornamental fish and invertebrates against intoxications by chlorine, nitrite, ammonia and heavy metals
• immediately removes these toxic substances from the aquarium water
• 5 ml (approx. 1 teaspoon) are sufficient for 20 liters (5.3 US gal.)

An important tip:
After having treated a fish disease or having used sera algovec* or sera snailpur*, sera toxivec will remove the remainders.

After a strong water pollution, the purification bacteria in sera nitrivec need some support from sera turbo-clear. These high performance enzymes and microorganisms reduce the amount of sludge as well as unpleasant odors.

Regular sera toxivec addition provided, you can occasionally skip a water change.

* Use biocides safely. Always read the label and product information before use.
**Care as required**

**Plant care**
Many new aquarists tend to remove every dead or fallen leaf and every little bit of dirt from the aquarium immediately. Please bear in mind: Every time you hold your hand into the aquarium you will put its inhabitants under stress. Furthermore, substances dangerous for fish, such as soap remainders, fats etc., get into the water every time.

**Algae removal**
Green algae in spot-like groups may grow on the aquarium glass, but also on bright rocks or plant leaves. Do not be worried too much if you discover this kind of algae in your aquarium. Green algae will grow only in case of satisfying water quality. Algae-eating fish such as *Otocinclus* or *Ancistrus* are suitable for natural algae removal. Sometimes, a few Swordtails or Black Mollies are sufficient to keep algae growth down. Furthermore it is advisable to add more fast-growing plants that will withdraw algae nutrients from the water.

You can easily remove green algae growing on the front pane of the aquarium with the sera glas-clear algae magnet or with some sera filter wool. Unfortunately, there are other kinds of algae which are less harmless. If you wish to know more about these algae and their combat we will inform you on the Internet ([www.sera.de](http://www.sera.de)) in the section “Aquarium care”. You will get the printed sera algae check list from your retailer.

**TIP**
Best perform cleaning measures only serving for optical purposes together with a partial water change.
Care as required

Cleaning the aquarium cover panes
You can remove lime deposits on aquarium cover panes during a water change. Hot water and sera pH-minus quickly make the panes transparent again. A “blind” pane considerably lowers light intensity. The plants grow less good. Therefore never wait too long with this maintenance measure.

Cleaning the aquarium glass on the outside
Clean the outside of the aquarium glass only after the aquarium is full and the hood is closed again. Then pour some sera pH-minus on a soft cloth and thoroughly wipe the pane with it. Rub off remainders with a dry cloth.

Important:
Please wear rubber gloves when using sera pH-minus for cleaning aquarium glass or technical equipment, and avoid dashes from getting in your eyes!

Cleaning the aquarium glass on the inside
Even with good aquarium care, it is sometimes impossible to avoid slight periphyton growth on the aquarium glass (e.g. green algae). sera glas-clear algae magnets provide quick and thorough help in this case. The brush of the cleaner part consists of high quality, solid plastic. The cover layer of the outside part is made of soft felt. This prevents scratches, even after years of use.

Lime deposits
You can also easily remove lime deposits on the heater or on filter hoses with sera pH-minus. Lay on some sera pH-minus and allow it to work for a few minutes. Then simply rinse it off (repeat or rub with sera filter wool if necessary).

Dying fish
Always remove dead fish immediately! You should quickly find out the cause and remove it. Carry out an extensive water analysis. In particular, check the pH value, the carbonate hardness (KH), chlorine (Cl), ammonium/ammonia (NH₄/NH₃), nitrite (NO₂), phosphate (PO₄) and copper (Cu).
**sera water test kits** are an “early-warning system” allowing you to monitor deviations of optimal water values. You will be able to react with appropriate measures in time if the deviations exceed a certain tolerable range. Aquarium care takes little effort this way, and you will spare your biotope extensive alterations. **sera test kits** are very precise and easy to handle.

**sera test kits** and **sera water care products** are adjusted to each other. We therefore recommend to use **sera** brand products for simple and optimal water value adjustment.

The **sera aqua-test set** contains the most important water reagents:
- pH value
- total hardness
- carbonate hardness
- nitrite

**sera aqua-test box** – the professional set contains water test kits for:
- pH value
- total hardness
- carbonate hardness
- ammonium/ammonia
- nitrite
- nitrate
- phosphate
- iron
- copper or chlorine

The water parameters are different and depend on the fishes’ country of origin. The conditions in the Amazon are, for example, entirely different from those in Lake Malawi. Maintaining the proper water values is much easier if you keep fish from the same biotope than with fish from different origins.
Total hardness (GH)

The total hardness of the water is determined by the concentration of calcium and magnesium salts. It directly influences the growth of fish, microorganisms, and plants. Most ornamental fish kept in aquariums originate from areas with soft water.

Measuring rhythm
Once weekly and with every water change

Ideal water value
between 6 and 16 °dGH
(depends on fish stock)

If the value is too high:
↓
• Filter through sera super peat or add sera morena, which contains natural peat extracts, trace elements and humic acids, for fish from soft tropic water such as characins, barbs, catfish and South American cichlids
• Partial water changes with softer or deionized (reverse osmosis or ion exchange) water conditioned with sera mineral salt

If the value is too low:
↑
• Add sera mineral salt

Carbonate hardness (KH)

Carbonate hardness is formed from compounds of calcium and magnesium with carbonic acid. It binds acids and therefore prevents a drastically sinking pH value, which would be dangerous for the fish.

Measuring rhythm
Once weekly

Ideal water value
between 5 and 10 °dKH

If the value is too high:
↓
• Add sera pH-minus
• Partial water changes with softer or deionized (reverse osmosis or ion exchange) water
• Filter through sera super peat

If the value is too low:
↑
• Add sera KH/pH-plus
pH value

The pH value indicates whether the water is acidic (below 7), neutral (7) or alkaline (above 7). The pH value is a logarithmic value, i.e. pH 6 indicates 10 times as much acid as pH 7. You should avoid even pH deviations of one unit as to prevent irritations of the fishes’ mucous membrane.

Measuring rhythm
Once weekly

Ideal water value
6 – 7 for most fish and plants from tropical regions; 7.5 – 8.5 for cichlids from Lakes Malawi and Tanganyika.

If the value is too high:
\[\downarrow\]
- Add sera pH-minus
- Add CO₂ with the sera CO₂ fertilization system
- Filter through sera super peat
- Partial water changes with more acidic water

If the value is too low:
\[\uparrow\]
- Add sera pH-plus
- Partial water changes with more alkaline water, provided there is no detectable ammonium pollution. Condition with a double dose sera aqutan to protect the mucous membrane

Ammonium (NH₄⁺)/ammonia (NH₃)

High ammonium levels indicate disturbed or yet insufficient water purification by bacteria, e.g. after a water change or with a new setup. If the pH value is above 7, a larger amount of ammonium will be converted into ammonia, which is toxic to fish. This bears the risk of gill damages and suffocation for the fish. Ammonia levels as low as 0.02 mg/l (ppm) are dangerous.

Measuring rhythm
Once weekly and whenever necessary (fish feeling unwell)

Ideal water value
0.0 mg/l (ppm) NH₃

If the value is too high:
\[\downarrow\]
- Emergency measure in case of an acute ammonia intoxication: Immediately add sera toxivec
- Partial water change (check pH value of the water)
- Condition water with sera aqutan, sera turbo-clear and sera nitrivec
- Check the filter
- Filter through sera siporax
- Feed sparingly
- Add more plants

If the value is too low:
\[\uparrow\]
- Add sera pH-plus
- Partial water changes with more alkaline water, provided there is no detectable ammonium pollution. Condition with a double dose sera aqutan to protect the mucous membrane
Nitrite (NO₂)

Nitrite is an intermediate in pollutant breakdown (NH₄/NH₃ to NO₂). In too high concentrations it acts as a blood poison. Any detectable nitrite levels are a water pollution.

Measuring rhythm
Once weekly and whenever necessary (fish feeling unwell)

Ideal water value
0.0 mg/l (ppm) NO₂

If the value is too high:
0.3 – 0.9 mg/l (ppm) NO₂: Water pollution
  • Immediate measure: Add sera toxivec
  • Carry out a partial water change, siphon off the bottom with the sera gravel washer, condition water with sera aquatan and sera nitrivec
  • Check the filter
  • Filter through sera siporax
  • Feed sparingly
  • Check whether a fish has died

from 0.9 mg/l (ppm) NO₂: Severe water pollution
Fish are in danger
  • Immediate measure: Proceed as described above
  • Partial water change: Proceed as described above
  • Check the filter
  • Filter through sera siporax
  • Remove the cause of water pollution

3.3 mg/l (ppm) NO₂ and above: Acute danger to the fishes’ life
  • Add a double dose of sera toxivec as an emergency measure
  • Immediately change 30% of the water, proceeding as described above
  • Change 30% of the water again after 12 – 24 hours, proceeding as described above

Nitrate (NO₃)

Nitrate is the next step in pollutant breakdown (NO₂ to NO₃). It can also directly get into the aquarium with tap water. Fish and plants will not thrive, and algae will grow rapidly if the nitrate level is too high.

Measuring rhythm
Once weekly and whenever necessary (increased algae growth)

Ideal water value
maximum 20 mg/l (ppm) NO₃

If the value is too high:
from 20 mg/l (ppm) NO₃
  • use 1 liter (1 quart) sera siporax per each 100 liters (26.5 US gal.) of water in the filter
  • additionally activate the filter with sera turbo-clear
  • add fast-growing plants
  • carry out partial water changes with water low in nitrate
  • possibly reduce fish stock and feeding

above 100 mg/l (ppm) NO₃
  • immediately change 30% of the water and proceed as described above
Iron (Fe)

Iron is one of many important nutrients for all aquatic plants. Too low iron levels adversely affect the plants. However, too much iron will harm the fish and also some plants.

Measuring rhythm
Once weekly and whenever necessary (increased algae growth, poor plant growth)

Ideal water value
0.5 mg/l (ppm) Fe

If the value is too high:
• Partial water change, condition water with sera aquatan and sera nitrivec

If the value is too low:
• Fertilize with sera florena and sera florenette A

Please note: Due to the slow release of nutrients, which are also directly taken up by the roots, you cannot monitor fertilizer tablets with iron test kits.

Oxygen (O2)

Oxygen is essential for fish and other living beings in an aquarium. Plants also require small amounts of oxygen at night. Oxygen deficiency leads to breathing problems for the fish. In severe cases, fish and other animals may even suffocate.

Measuring rhythm
Every fortnight, in the morning and in the evening, and in case the fish feel unwell. The levels should be higher in the evening than in the morning

Ideal water value
above 4 mg/l (ppm) O2

If the value is too low:
• Quickly increase oxygen level with sera oxypur
• Aerate water with an air pump (sera air) and an airstone (sera air set)
• Increase surface agitation with a sera internal filter F adjustable
• Remove causes for oxygen deficiency
Carbon dioxide (CO₂)

CO₂ is an important nutrient for all plants. CO₂ levels between 10 and 40 mg/l (ppm) have proven best. The aquarium fish will also get along well with this.

Measuring rhythm
Daily (without much effort, using the sera CO₂ long-term indicator)

Ideal water value
Between 10 and 40 mg/l (ppm) CO₂, for delicate fish species up to 20 mg/l (ppm)

If the value is too high:
⇓
• Reduce CO₂ addition
• Remove acute overdose by aerating with a diaphragm pump (sera air) and an airstone (sera air set)
• The **seramic CO₂ control system** controls and regulates CO₂ fertilization fully automatically

If the value is too low:
⇑
• Add CO₂ with the sera CO₂ fertilization system
• Small aquariums: sera CO₂-Start

Copper (Cu)

Copper is very toxic to fish, invertebrates and micro organisms. Copper can get into the aquarium with tap water or with copper-containing treatments. The copper level must be monitored carefully as to avoid overdoses.

Measuring rhythm
With every water change (check tap water), if the fish feel unwell and when using copper-containing treatments

Ideal water value
0.0 mg/l (ppm) Cu
above 0.3 mg/l (ppm) Cu: fatal for snails
above 1.0 mg/l (ppm) Cu: fatal for all organisms in the aquarium

If the value is too high:
⇓
• Carry out large water changes with copper-free water, condition aquarium water with a double dose of sera aquatan and sera nitrivec plus sera toxivec
Chlorine (Cl)
Chlorine is often present in tap water and may get into the aquarium with new setups or with a water change. Chlorine is corrosive to the mucous membranes of the fish, even in low dosage. Furthermore, it affects waste breakdown in the filter as it lowers the number of useful purification bacteria.

Phosphate (PO₄)
Phosphate fulfils important functions during the metabolism of all aquarium inhabitants. However, too high phosphate levels will arise from too dense fish stock, food rich in phosphates and plant fertilizers containing phosphate. In combination with high nitrate levels, high phosphate levels cause excessive algae growth.

Measuring rhythm
Once weekly and whenever necessary (increased algae growth)

Ideal water value
not higher than 1 mg/l (ppm) PO₄
(better: max. 0.5 mg/l (ppm) PO₄)

If the value is too high:
• Change 10 – 30% water once weekly
• Add fast-growing plants
• Add sera phosvec as an immediate measure
• Feed sparingly
• Use sera phosvec Granulat in the filter for permanent removal

Chlorine (Cl)
Chlorine is often present in tap water and may get into the aquarium with new setups or with a water change. Chlorine is corrosive to the mucous membranes of the fish, even in low dosage. Furthermore, it affects waste breakdown in the filter as it lowers the number of useful purification bacteria.

Measuring rhythm
After a new setup, and when changing or topping up water (check tap water)

Ideal water value
below 0.02 mg/l (ppm) Cl

If the value is too high:
• When carrying out a water change, fill tap water into a bucket with a spray nozzle or through a clean sieve. Then condition it with sera toxivec before filling it into the aquarium. 25 ml (approx. 0.8 fl. oz.) sera toxivec will neutralize 3.4 mg/l (ppm) chlorine in 100 liters (26.5 US gal.) of water.
• Condition aquarium water with sera aquatan and sera nitrivec
The sera online laboratory makes aquarium care much easier and is a lot of fun. You will easily learn how to use water test kits and water conditioners. You can check the quality of your aquarium and, of course, also your pond water at any time.

This has essential advantages:
- constantly good water quality
- less problems with algae
- early detection of a possible fish disease
- less time required for aquarium care

Get convinced on the Internet on www.seralabor.com
Water changes

Not all waste products can be broken down completely in the aquarium. Substances such as nitrates and phosphates, which in large amounts are toxic to the fish, will necessarily enrich in every aquarium. In nature, these substances are washed away or diluted by flowing water. You will achieve the same effect with regular water changes.

When, and how much water?

It is recommended to change relatively small amounts of c. 20% once weekly. Larger water changes (above 50%) disturb the equilibrium in the aquarium biotope, and therefore should remain reserved for emergencies such as an acute nitrite or copper intoxication. In that case you should by all means also use sera toxivec (see pages 13, 14, 16 and 17).

Water change frequency and amounts of changed water depend on
- aquarium size
- number and size of aquarium inhabitants
Water changes

Examples for water amount and intervals:

Calculation of the aquarium contents:

60 cm (24 in.) width x 30 cm (12 in.) height x 35 cm (14 in.) depth
= 63,000 cm³
= 63 liters (16.6 US gal.) gross volume

or

100 cm (40 in.) width x 40 cm (16 in.) height x 40 cm (16 in.) depth
= 160,000 cm³
= 160 liters (42 US gal.) gross volume

The following chart is applicable for community aquariums with normal fish stock. The given data have proven well in practice.

<table>
<thead>
<tr>
<th>Aquarium size/Contents</th>
<th>Amount to be changed</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 – 60 l (13 – 16 US gal.)</td>
<td>10 – 20 l (2.6 – 5.3 US gal.)</td>
<td>weekly</td>
</tr>
<tr>
<td>80 – 100 l (21 – 26.5 US gal.)</td>
<td>20 l (5.3 US gal.)</td>
<td>weekly</td>
</tr>
<tr>
<td>110 – 120 l (29 – 32 US gal.)</td>
<td>20 – 30 l (5.3 – 7.9 US gal.)</td>
<td>weekly</td>
</tr>
<tr>
<td>160 – 200 l (42 – 53 US gal.)</td>
<td>30 – 40 l (7.9 – 10.6 US gal.)</td>
<td>weekly</td>
</tr>
<tr>
<td>above 250 l (66 US gal.)</td>
<td>20%</td>
<td>every fortnight</td>
</tr>
</tbody>
</table>

Partial water changes are carried out too infrequently

Large amounts of toxic substances quickly enrich in the small aquarium biotope. It is simply wrong to believe it is possible to just wait three months and then in return change more than half of the water. In that case you should not be puzzled about thriving algae and fish not doing well at all.

Adding sera toxivec and sera turbo-clear allows to skip a water change if once you did not find the time. However, the water values should still be checked with the sera water test kits.
Preparation

You will need:
• A watering can and two clean buckets reserved only for the aquarium. They must never have been in contact with cleaning agents.
• Two meters (2.2 yd.) aquarium hose or, even better, a **sera gravel washer**.
• A towel or a shallow bowl in case of spilling water.
• By all means pull the mains plugs, e.g. those of the heater, the filter, and the lighting.

How to remove water from the tank

First place the two buckets on the towel or in the bowl. Then let the water flow from the aquarium into the buckets. There are different ways to do so:

Many aquarists hold the hose end into the aquarium and then briefly suck the water from the other end with their mouth. However, this method requires some practice. Sometimes, the water either will not flow, or you may accidentally swallow a big gulp of aquarium water.

You can siphon the water off more elegantly with the **sera gravel washer**. By doing so, you will serve two purposes at once. You will easily and thoroughly remove sludge from the aquarium gravel with the **sera gravel washer**, and you will change a part of the water at the same time.

After you removed the aquarium water as far as necessary you can now also perform smaller cleaning activities.

**An important tip**

When working with the **sera gravel washer**, please make sure to not clean an area of 5 cm (2 in.) around every plant. This will protect the delicate plant roots. Mark the outside of the aquarium glass with adhesive tape or the like up to where you wish to empty the tank.
How to condition tap water

Now the aquarium is topped up with tap water which, however, needs to be conditioned according to the requirements of the ornamental fish. Remember, our water suppliers do not necessarily think about aquariums when preparing the drinking water! Their task is to provide water suitable for human consumption. Drinking water must to be of good taste and very low in nutrients and pathogens, and it must not destroy the pipes. Consequently, quite often disinfecting chemicals such as chlorine are used to kill dangerous bacteria and pathogens.

Therefore water that we can drink is often too aggressive for the sensitive mucous membranes and too toxic to ornamental fish. At the same time, this water hardly contains any beneficial bacteria at all. Chlorine also considerably reduces the number of purification bacteria in an aquarium.

The sera water conditioners ensure water conditions according to nature. Fill the tap water into a watering can and condition it with sera aquutan, sera nitrivec, sera mineral salt and, depending on the fish stock, sera morena.

Add sera toxivec directly into the aquarium water as to immediately remove remaining pollutant levels.

**sera toxivec**

- immediately protects ornamental fish and invertebrates against intoxications by chlorine, nitrite, ammonia and heavy metals
- immediately removes these toxic substances from the aquarium water
- 5 ml (approx. 1 teaspoon) are sufficient for 20 liters (5.3 US gal.)
- creates ideal conditions for sera nitrivec purification bacteria

**sera aquutan**

- neutralizes dissolved salts and aggressive chlorine.
- immediately binds harmful metal ions.
- protects and stabilizes the mucous membranes of the fish due to the valuable vitamin B complex.
- supports the growth of plants and micro-organisms due to the vitamin B complex.
- reduces stress of the fish during transport and introduction into the new tank.
- water conditioner with 5-fold effect.
- makes water suitable for fish and bio cultures.
- accelerates wound healing after smaller injuries due to skin protecting colloids.
Please try to adjust the temperature of the fresh water roughly to the aquarium water temperature. It will, however, cause no harm if the fresh water is slightly cooler than the aquarium water. Quite contrary: Many fish become very agile after the water has become slightly cooler (not more than by 1 – 2°C / up to 3°F). Metabolism and the readiness to spawn are enhanced.

Adding water

When adding water, make sure not to whirl up too much gravel or even hollow out plant roots. A watering can makes this much easier.

As soon as after the second or third water change you will have enough practice that the whole work is done in 15 to 20 minutes. And your ornamental fish and aquatic plants will do fine in an aquarium kept this way.

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**sera nitrivec**
- bio cultures for filter and aquarium water.
- breaks down ammonium and nitrite in a natural way.
- with long-term effect.

**sera morena**
- ensures water conditions similar to those in the tropic regions in the aquarium, due to natural peat extracts, trace elements, vitamins and humic acids.
- apply sera morena together with sera aquatan if you keep, e.g., tetras, barbs or other soft-water fish.

**sera mineral salt**
- enriches the tap water with minerals occurring in natural water in the biologically correct amounts

**Important:**
Test the water after conditioning.
sera water filtration
as in nature
The aquarium water is mechanically and biologically purified by sera filter media.
Just as in nature, the water flows through several purification steps within the filter.

We will now give you a brief overview about the sera range of filter media and filters.

Mechanical prefiltration
sera biofibres collect coarse particles and floating matter.

Biological water purification
Purification bacteria from sera nitrivec settle in sera siporax and break down pollutants biologically.
Ammonium/ammonia (NH₄/NH₃)
Nitrite (NO₂)
Nitrate (NO₃)
Clean water

Final mechanical purification
sera filter wool or the sera filter mat collect fine dirt particles. In the sera internal biofilters B you can also use sera filter wool at the water intake, directly after sera biofibres.
sera filter media for special tasks

sera super peat slowly releases valuable humic acids and trace elements into the water. This is ideal for, e.g., discus, dwarf cichlids and many tetras.

sera super carbon is used for removing organic remainders, e.g. after a disease treatment.

sera phosvec Granulat easily and reliably removes phosphates. It therefore serves for algae prevention.

sera filter equipment

serafil 380 internal filter
- small and very powerful
- for aquariums up to 60 liters (16 US gal.)

sera internal biofilters B 200 and B 400
- compact and unobtrusive
- large filter volume due to 4 chamber system
- for aquariums up to 200 or 400 liters (53 – 106 US gal.)

serafil external filters are economic, powerful and easy to operate:

serafil 900 (900 l/h / 238 US gal./h)
- 5.9 liters (1.5 US gal.) filter volume
- for aquariums up to 240 liters (63 US gal.)

serafil 1100 (1,100 l/h / 290 US gal./h)
- 8.1 liters (2.1 US gal.) filter volume
- for aquariums up to 350 liters (92 US gal.)

serafil 1300 (1,300 l/h / 343 US gal./h)
- 10.5 liters (2.8 US gal.) filter volume
- for aquariums up to 450 liters (119 US gal.)

You will find detailed information about sera filter media and sera filter equipment in the sera guide “How to set up an aquarium” or on the Internet (www.sera.de).
Cleaning the filter and the filter media

a) Cleaning the filter
The parts of the filter are cleaned under running water without using cleaning agents. You will find detailed information on how to clean the filter in the according directions for use.

b) Rinsing biological filter media
Filter media for settling purification bacteria such as sera siporax, sera biopur forte etc., or filter sponges in small filters, are only casually rinsed but never washed out with cleaning agents. Cleaning agents destroy almost all useful bacteria in an aquarium. In that case, no pollutants would be broken down for several weeks.

It is best to rinse the filter media in a bucket with aquarium water. You can use the water from the water change to do so. The bucket must never have been in contact with any cleaning agent. This will remove coarse dirt without all the bacteria being washed off. We recommend to clean only a part of the biological filter media at one time as to prevent too many filter bacteria disappear. Afterwards, add some sera nitrivec onto the filter media. By doing so you will support quick activation of the biological water purification.

c) Replacing mechanical filter media
sera filter wool, sera filter mat or sera biofibres, to name but a few, collect coarse and fine dirt particles. You should wash out these filter materials in some aquarium water or, in case of strong pollution, replace them.
**Cleaning intervals**

We recommend to replace **sera filter wool** and **sera biofibres coarse** in case of strong pollution.

- Please wash out the filter materials for settling purification bacteria
  - every 3 to 4 months in case of normal fish stock
  - every 6 to 12 months in case of optimal fish stock

This of course also depends on the filter size compared to the aquarium size. If the filter is too small for an aquarium with many fish you will need to clean it more often. In this case we recommend to install a biologically more powerful filter. Purification intervals will prolong if the different filter media are optimally arranged.

**Cleaning out of schedule**

In case of considerably reduced water flow because the filter is clogged.

**Application of special filter media**

**sera super carbon** (filter carbon) and **sera super peat** (blackpeat granulate) should generally be replaced after 6 weeks.

Please test the nitrite level with the **sera nitrite-Test (NO₂)** twice weekly for at least 4 weeks every time you rinsed the filter material.

**Easy filter media change**

Adding and removing filter media becomes much easier with **sera filter media bags**. The filter media remain within the filter in a proper arrangement. Cleaning the filter media is easier to handle.