

## 6 things you should know about aquarium water quality

### **Ammonia**

Ammonia is produced in the aquarium from uneaten food, dead fish or plants and from the fish through its urine, faeces and its gills. Ammonia is extremely toxic to fish especially in warm water with a high pH. Once an aquarium is mature it will convert ammonia into nitrite then into a less toxic substance called Nitrate. Ammonia can be measured using a test kit and if any ammonia is found in the aquarium you should act immediately in the short term with a 40% water change in the long term you need to discover the cause. New aquariums will take many weeks to mature if your aquarium is new a ammonia reading is normal and you should carry out regular water changes, test the water every 2 days and monitor the fish closely. If your aquarium is established some causes may be dead livestock, dirty filters, over stocking or over feeding.

### **Nitrite**

Nitrite is produced in the aquarium when beneficial bacteria breaks down ammonia, nitrite is very toxic to fish as it affects their blood's ability to carry oxygen. Nitrite is commonly found in new aquariums that are not fully mature as with ammonia carry out regular water changes, test the water every 2 days and monitor the fish closely.

### **Nitrate**

Nitrate is the end product of the nitrogen cycle and its presence in the aquarium signals that the filter is working, although not directly toxic to fish you should not let it exceed your tap water by more than 40mg/l.

### **pH**

pH is the measurement of the aquarium's acidity or alkalinity. pH is measured on a scale of 1 to 14, the lower the pH the more acidic the water is, 7 is neutral meaning there is an equal number of acid causing ions and alkaline causing ions. If possible try to keep species of fish that will happily live in the water that is supplied to your area through tap water. Adjusting pH and maintaining a required pH level is difficult and should only be attempted by an experienced hobbyist. The easiest ways of adjusting pH is by using a water purifier for lowering pH and using crushed coral or ocean rock for raising the pH.

### **Phosphates**

Phosphates in the aquarium typically come from many sources including un-eaten fish food, dirty filters, tap water and carbon. Phosphates are responsible for the growth of unsightly algae in the aquarium therefore should be kept to a minimum. Regular water changes, gravel and filter cleans will help keep phosphate levels to a minimum. Plants will remove phosphates as it acts as a fertiliser also a suitable ion exchange media may be used.

### **Tannins**

Tannins are natural dark substances that occur naturally in plant material. Typically tannins will be released into the aquarium through bogwood, cork bark or coconut shells. Tannins are reasonably harmless to fish however they will turn water brown and also acidify it which may cause problems to fish that prefer a neutral to alkaline water. Before introducing the above items into an aquarium it should be aged by leaving it soaking in water for at least a week however the longer the better. Smaller pieces can be boiled for 2 hours this will greatly reduce the amount of tannins in the wood. Bear in mind that it will take many years for the wood to stop releasing tannins into the aquarium, the brown coloration of the water can be reduced with regular water changes.