

## Choosing a substrate for your aquarium



Choosing the correct substrate is one of the most important decisions you will make when setting up your aquarium. What type of tank would you like, for example, fresh water or marine? Are you only going to use artificial plants or would you prefer a natural substrate that enables you to grow live plants? Would you like your fish to breed?

Your substrate provides a home to the beneficial bacteria that keep your tank healthy and stable. It is important to make a well informed choice so that your tank is well balanced. Then you can spend less time maintaining and more time enjoying your hobby.

### **For the tropical or cold water fish tank**

Smooth, natural gravel is one of the most popular substrates for these tanks. It is familiar to most fish and allows them to exhibit more natural behaviour and colours. Larger grades (6 to 10mm) are great for goldfish as they naturally feed from the bottom of the tank and smaller substrates risk being swallowed. Larger gravel also allows water to flow through it more easily and this provides oxygen to beneficial bacteria. Fine gravel or sand (1 to 4mm) is commonly used in tropical tanks or those with smaller fish where ingestion won't be an issue. Plants can root better into fine gravel too and any waste or leftover food tends to be more visible and therefore easier to remove. Many aquarists use either a medium gravel (4 to 6mm) or a mixture of grades to share some of the benefits and create a more diverse aquascape.

### **Coloured gravel and sand**

Gravel is available in a variety of colours. This is great if you have a theme for your aquarium or if you are using colours to compliment other furniture in the room. All of what has been said about the different sizes of substrate applies just the same. It is worth noting that Many people keep tropical fish because of their beautiful colours. Most fish have evolved these colours as a way of communicating with each other, either readiness to breed, social status, or to confuse predators. Bright substrates can confuse fish and as a result, many will mute their colour or pattern and appear relatively dull when very bright gravel is used.

If you are using internal or external power filters, you should have a gravel depth of around 1 to 1

and a half inches. If you are using an under gravel filter system, you will need approximately 3 inches of gravel.

## **For the planted tank**

By far most aquarium plants acquire nutrients through their roots so it is best to have two different layers of substrate. The bottom layer should consist of a special planting substrate capable of holding on to nutrients. These should be porous to allow plants to anchor themselves down. This layer needs to be 1 to 2 inches thick for most plants to thrive. The top layer should be medium or fine standard aquarium gravel of 1 to 2 inch depth. This is because many planting substrates are quite sharp and could cause damage to bottom feeding fish such as corydoras catfish. Having the top layer of gravel prevents the nutrients in the lower layer from simply washing away and slows down the passage of water around the plants roots, enabling them to root firmly.

## **For the marine aquarium**

When choosing the substrate for your marine aquarium it is important to remember that salt water fish and invertebrates require a high pH of around 7.8 to 8.4. This is the reason that the majority of salt water tanks use calcium carbonate based substrates. As the pH of your water naturally drops over time, these substrates will act as a natural buffer by releasing calcium into the water.

It is important to have an idea of the species you would like to stock. Many marine fish either pick up mouthfuls and sieve it through their gills or burrow into it. These species require a fine sand to do this. Larger predatory fish often swim mid water and so you can use a larger gravel or crushed shells. This can create a dramatic effect on the bottom of the tank. The species you decide to keep should determine what size gravel or sand you use.

If you want to keep a tank of mixed fish and invertebrates, you may want to have areas of the tank with different types of substrates. This can be harder to maintain but it is very rewarding to see many different creatures in their chosen element. It is important to research any animal before you buy and ensure you can provide it with everything it needs.

## **Other things to consider**

Gravel is heavy! For every square foot at 1 inch deep you will require 4 to 5 kgs of substrate. Deeper substrate than normal is advised if you use rocks or heavy decorations in your tank. They will need to be placed securely so that they don't move and harm your fish or damage your tank.

Always read the instructions when you purchase substrate. Some require washing before they are added and others, such as many planting substrates, do not. Doing so would wash away vital minerals. When washing your substrate it is much easier to do small amounts rather than all at once. The best way to do this is by pouring a few kgs into a bucket, adding tap water. Stir up the substrate before allowing it to settle for a few seconds and then pouring off the water. Repeat this as many times as is necessary until the water runs clear.

If you have a plastic or acrylic aquarium, you need to take extra care when adding sand or gravel as these tanks will scratch more easily than glass.

After adding substrate to an empty aquarium, place a saucer on top of the substrate. Then fill the aquarium by pouring water onto the saucer. This will ensure minimal disturbance and when combined with well washed gravel, will reduce the chance of cloudy water.

Most of all, have fun! Choosing the correct substrate will have long lasting effects in your aquarium. It will make maintenance easier and your pets happier. As long as your choice is well informed, the rewards are long lasting.

