Measuring pH in Fresh Water Aquariums

pH is one of the most important factors in fish survival. Knowing this, we have designed a pH meter that will make your pH testing process easy and affordable. In general, fish can live in pH ranges from 6.0 to 9.0, but their quality of life is best between a pH range of 7.0 and 8.0. Changing the pH suddenly, even by a small amount, is a chemical change that can be more stressful to fish than one would think. To an aquarium keeper, two aspects of pH are important. First of all, providing stability is a must. Rapid changes in pH do cause stress to fish and should be avoided. If pH changes more than 0.3 units per day, it can send the fish into pH shock. This means one must keep the pH of their tank constant and stable. Second, fish have adapted to surviving in a certain pH range. Be sure that the tank's pH matches the requirements of the fish being kept. Don't worry, though. Generally, most fish can adjust to a pH that is outside their optimal range.

Freshwater fish are very adaptable as a rule. Many of them are from environments in which the pH and hardness of the water fluctuate from time to time so they have to adapt in order to survive those changes. If the water's pH has a natural range of 6.5 to 7.5, most species of fish will do fine in it and there will be no need to adjust it up or down. Remember, the time to make major changes in the pH of the tank water is *before* one adds the fish. If adjustment is necessary, make sure it is done slowly - usually no more than 0.2 pH within a 24-hour period and accurately, using the waterproof pHScanWP1/2.

There are two main factors that can influence pH and make adjustments to the tank's pH levels necessary:

Biological Filtration

The first is the process of biological filtration. This filtration is necessary to the processing of fish wastes and lowers pH by releasing carbon dioxide into the aquarium's water supply. It's a gradual process, but in a heavily stocked tank, the pH may drop by a whole point, from pH 7.6 to 6.6, in a period of a few months. The drop is gradual, so the fish usually survive, but weekly pH tests with the pHScanWP1/2 are recommended. They are vital if the tank holds many fish or if it's over a year old.

Carbonate Hardness

The other test that is necessary in maintaining pH is KH, or carbonate hardness. Carbonates in the water are known to buffer pH by tying up the hydrogen ions released by the carbon dioxide. One must manually add buffers to the water, but they must be used sparingly to avoid pH shock.

In a closed aquarium, there is a tendency for carbon dioxide accumulation. This reduces oxygen and inflicts respiratory stress on various fishes. Small amount of ammonia or nitrate can be fatal thus it is important that you monitor the water quality carefully as lowering or sudden shift in pH value may endanger the aquarium life. Careful pH control automatically compensate for the tendency toward lower pH due to increase production of carbon dioxide and metabolic products.

To maintain a stable environment for your fish is important, for this purpose in mind Eutech designed a lightweight pH meter that will best fit your needs. The compact, waterproof pHScanWP1/2 pocket-sized pH tester with a user-replaceable sensor makes pH monitoring simple and accurate. Likewise a 24-hour pH monitor allows non-stop monitoring of the aquarium pH value with greater ease.

Fish and Their Respective pH Ranges:

Angel fish and discus	5.0 - 7.0 pH
Most tropical fish	6.5 - 8.5 pH
Malawian cichlids	7.0 - 9.2 pH
Tanganyikan cichlids	7.0 - 9.5 pH

West African cichlids	5.0 - 7.8 pH
South American cichlids	5.0 - 8.0 pH
Central American cichlids	6.0 - 8.5 pH

Fish Family pH Ranges:

Rasboras, barbs, clown loach, discus, angelfish, other South American cichlids	6.5 to 7.0 pH
Most tetras, silver dollars, most loaches, plecostomus, algae eaters	7.0 to 7.4 pH, low GH
Danios, gouramis, many cichlids, most catfish, rainbow sharks, redtail sharks, guppies, platies, and swordtails	7.0 to 7.4 pH, high GH
Mollies, African cichlids from Lake Malawi and Tangynika	7.6 to 8.6 pH, high GH