

## Instruction leaflet

**Tetratest GH (General Hardness)** For Freshwater

**Tetratest KH (Carbonate Hardness)** For Fresh and Seawater

**For an accurate determination of the general hardness (for freshwater) and carbonate hardness (for fresh and seawater).**

**Important:** the Tetratest GH is suitable for testing water from freshwater aquariums and garden ponds. Do not use for marine aquariums as the general hardness in seawater reaches levels above 300°dH. The Tetratest KH is suitable for testing water from freshwater aquariums and garden ponds as well as from marine aquariums.

### Why test?

Tap water and thus aquarium water demonstrate a variety of chemical characteristics depending largely on the water source. Two of the most important values of water quality are the general and carbonate hardness. The Tetratest kits measure both of these values in German degrees of hardness dH.

The general hardness (GH) of the water is a measure of the dissolved calcium and magnesium salts. These salts directly influence the metabolism of fish, plants and microorganisms. Water with a high calcium and magnesium salt content is referred to as hard and with a low content as soft. Most freshwater fish thrive at a general hardness level between 6° -16° dH. The carbonate hardness (KH) of the water is determined by the carbonate and bicarbonate content. This measurement is particularly important as the KH and pH values are interdependent. The KH value is a measurement of the buffering capacity of the water. A sufficient carbonate hardness level will prevent a dangerous decrease of the pH level and an excessive acidification of the water.

A KH value of 3°-10° dH is recommended for most freshwater fish. Seawater fish require higher values between 8°-10°dH.

### How to test:

Please read this section completely before starting the test.

1. Rinse the test vial with the water to be tested.
2. Fill the test vial to the 5 ml (cc.) mark with the water to be tested.
3. Hold the liquid reagent bottle upside down and add a drop at a time to the test vial.
4. Gently shake the vial after each drop and count the number of drops necessary to cause a color change.
5. GH: Color change from red to green. KH: Color change from blue to yellow.

**Note:** if the color change occurs right after the first drop, the level is between 0 and 1° dH

6. The number of drops added until the color changes, represents the level of hardness (German hardness), e.g. 3 drops = 3° dH.

After each test rinse vial thoroughly with tap water.

**Note:** The measuring accuracy increases if the test is performed with 10 ml of aquarium water (1 drop testing fluid = ½ ° dH).

### After the Test:

If the testing results reveal excessive hardness (GH or KH), this can be reduced by adding softer water, e.g. rainwater, distilled water, or water treated with a reverse osmosis unit. Water can also be softened by filtering it through peat. The quickest and most simple method for reducing the carbonate hardness is to add TetraAqua pH/KH Minus.

In the case of too low a level of carbonate hardness (e.g. below 1 -2° dH) the water should be hardened by leaving it in contact with limestone or marble chipping or by adding TetraAqua pH/KH plus.

Always condition your clean replacement water with TetraAqua AquaSafe to neutralize any dissolved chlorine and heavy metals.

**WARNING: Keep out of reach of children!**

**GH: Highly flammable! Contains Ethyl alcohol. Keep away from sources of ignition.**

**KH: Inflammable! Contains Ethyl alcohol.**

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