



°KH (dKH) - Carbonate Hardness is the waters buffering capacity, or carbonate hardness.

Sometimes KH is known as 'total alkalinity' or 'acid-neutralizing capacity' (ANC); it also sometimes measured in a different scale to degrees (°) a conversion can be found [here](#).

Some times KH is confused with GH which is General Hardness. KH and GH are different and KH is not part of any GH measurement. Therefore, KH and GH can be higher or lower than one another and provide no real indication of each other.

KH is a measurement of bicarbonates and carbonates and GH of total calcium and magnesium.

Most salt water aquariums naturally have very high KH. Therefore the following information is aimed mainly at fresh water pond and aquarium users with questions and problems with KH.

A higher KH will make your [pH](#) much more stable, help prevent pH crashes and also provide some health benefits. Most people don't know that KH is continuously consumed by [beneficial bacteria](#) and essential to biological filtration.

A low KH will make pH fluctuate greater and allow more rapid pH movements. In water with a low KH value, say under 2-3dKH (35.7-53.6ppm), the respiration of the plants or animals at night can cause large pH down shifts (due to CO₂ production) which harm and eventually kill aquatic animals. This is called pH shock and it is due to lack of water buffering or KH. A [seneye device](#) will alert for sudden pH changes and crashes every hour of every day. Testing pH at the same time once a day will not always show if the pH has a cycle as a result of low KH.

Safe levels for KH for fresh water fish even discus (except when breeding) should be 4.5 dKH or over.

If you have low KH you can perform water changes to supplement it or you can add chemicals to raise KH in the aquarium or pond; as otherwise you will eventually have a pH crash. We always recommend a good quality KH buffer is used; most are based on baking soda - Sodium bicarbonate (NaHCO₃). If a good buffer is not possible a natural buffer system can be employed such Aragonite or crushed coral. However, a strong buffer or natural buffers may also result in a pH raise, so care should be taken. It is not uncommon for people to use KH and acid buffers together to increase KH without increasing pH. Always take care to make changes slowly and not stress fish.

Pure [R.O. \(reverse osmosis\)](#) is stripped of everything including KH to give pure H₂O (water) it should never be used untreated and on its own; the only exception is to replace evaporated water.