



Total Alkalinity

Total alkalinity is a measure of the capacity of the water to resist change to the pH when acid is added.

It is often termed the measure of buffering capacity of the water against pH change.

Total alkalinity is also called bicarbonate alkalinity and is not the same as the alkalis

A pool with low alkalinity (below 60 milligrams per litre) will require the addition of a little acid to cause a rapid reduction in pH. A constant pH in low alkalinity water is difficult to maintain especially after rain.

A pool with high alkalinity (over 120 milligrams per litre) will require the addition of large quantities of acid to produce a drop in pH. It will tend to retain pH in most conditions.

The ideal total alkalinity range for pools containing either calcium or sodium hypochlorite is between 90 milligrams per litre and 120 milligrams per litre with the optimum between 80 and 100 milligrams per litre.

Hardness

Hardness is a measure of the concentration of metal ions or minerals in the water.

These ions are naturally present in waters which have passed through rocks or over soil from which they dissolved out the minerals.

The most prevalent ions are calcium (Ca) and magnesium (Mg), though many others exist.

Waters containing a lot of dissolved minerals are difficult to lather with soap and are thus termed hard.

Hardness of water is important when attempting to balance the pool water and avoid corrosion or scaling. The hardness of every water supply is different depending on the source of the water.



The ideal hardness for pool water is in the range 150 milligrams per litre to 300 milligrams per litre. However operators have little choice over the hardness of the water coming into the pool.

Effects of Temperature

Temperature affects all chemical reactions. The higher the temperature the quicker the rate of reaction will be. For this reason chlorine is used up quicker at higher temperatures.

Temperature also affects the amount of a chemical which may be dissolved. Most chemicals dissolve in greater quantities with higher temperatures.

Scale or calcium carbonate works in reverse. The higher the temperature the more it is likely to come out of solution as a whitish brown scale.

Higher temperature waters require greater disinfection as pathogens survive and reproduce better in these conditions.

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