

Water Hygiene in Pools & Spas



What to check?

Modern water treatment

Modern water treatment is a basic requirement for healthy pools and spas. Of course, the treatment results should be checked regularly in order to determine whether the water treatment is optimal, especially in consideration of changing operating conditions such as the number of bathers, the weather, the type of disinfection, etc. If there are deviations

from the recommended values for the hygiene parameters, measures can be taken to eliminate a potential health risk ahead of time.

What does the term hygienic auxiliary parameter mean? Hygiene refers to the general measures for prevention of infectious illnesses – to achieve this water treatment is used. Auxiliary

Analytical Notice

parameters are characteristics on the basis of which the water quality can be measured. A brief explanation into the significance of the most important verification methods is presented below:

Free chlorine

Free chlorine is an effective means of disinfection and oxidation of water in swimming pools and spas. How often and how much chlorine must be added depends on how frequently the pool is used. Other factors, such as the water temperature, solar radiation and addition of fresh water, must also be taken into consideration. The free chlorine formed in the water guarantees disinfection for a limited period and is nearly odourless. The recommended measurement range is between 0.3 and 2.0 mg/l, depending on whether inorganic or organic chlorine (stabilised chlorine) is used. The measurement of free chlorine in parallel to the pH value is normally carried out with the Pooltester.

Combined chlorine

With the chemical reaction of free chlorine with organic impurities, chlorine compounds like combined chlorine or chloramine arise. These chloramines cause skin and eye irritation and the unpleasant 'chlorine odour'. Combined chlorine has practically no effect as a disinfectant. In order to kill off micro-organisms or render them harmless and to break down combined chlorine, the pool

water must be re-chlorinated regularly. The concentration of combined chlorine should be minimised (<0.2 mg/l); ideally there should be no trace of it.

Total chlorine

Total chlorine is the sum of free and combined chlorine. First the free chlorine is determined, then the total chlorine. The difference from the two values is the concentration of combined chlorine.

pH value

The pH value indicates whether the pool water is acidic or alkaline and is a crucial factor for the efficacy of the free chlorine as a disinfectant. If the pH value is less than 6.5 (acidic range), eye irritation occurs. Signs of corrosion can also appear on metal parts. As pH values increase above 7.8 (alkaline range), the effectiveness of free chlorine decreases. The water can become clouded and calcium deposits can form. An ideal pH range is between 7.0 and 7.4.

Alkalinity

Alkalinity is the term for the acid buffering capacity of the pool water. It is part of total hardness and is also identified as temporary hardness. High alkalinity values prevent heavy fluctuations in the pH value. With a high alkalinity, the pH value is difficult to influence. With a low alkalinity, very small additions of acids or bases can

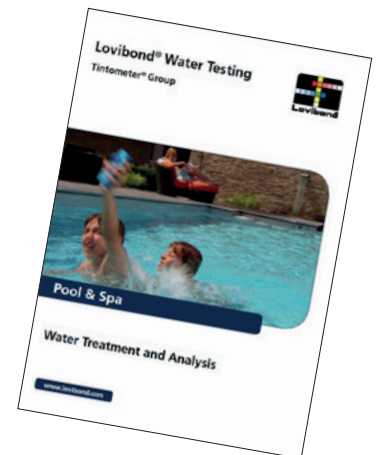
trigger heavy pH value fluctuations. Therefore, the alkalinity affects the stability of the pH value and the pH value, in turn, determines the effect of the free chlorine as a disinfectant. The alkalinity should be adjusted to a range from 100 - 160 ppm (mg/l) of calcium carbonate (CaCO₃); this corresponds to a hardness of approximately 6 - 9 dKH.

Complete water analysis

For the discerning private swimming pool and / or whirlpool user interested in determining all of the hygienic auxiliary parameters mentioned above, the electronic Pooltester Scuba II is recommended. It operates using a photometric measuring principle with tablets reagents having long-term stability.

If all of the values are within the measuring ranges recommended by the manufacturers of the water treatment products, impeccable water quality is assured and the long-term preservation of the structural materials and all components is secured.

For more information, click here:



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