

Water Balance for Pools and Spas

Balanced water causes no damage to pool surfaces and equipment.

Unbalanced water can cause:

- Corrosion or etching of pool and equipment surface
- Scale formation on all surfaces

There are three significant water balance parameters:

1. Calcium Hardness – pools containing too much calcium may scale surfaces but pool water deprived of calcium, becomes aggressive and etches surfaces. Calcium Hardness (Calcium Chloride) should be kept in the 200-400 parts per million (ppm) range
2. Total Alkalinity – this is the ability of water to resist changes in pH, it buffers water from wild pH swings. PH Buffer (Sodium Bicarbonate) is generally used as a buffering agent. Total Alkalinity should be kept in the 80-150 range.
3. pH – which is a measure of acidity or alkalinity of water. It is a scale of 1-14. The water is acidic between 1-7, neutral being 7 and alkaline or basic sitting at 7-14. pH should be kept in the 7.4-7.6 range by using pH Increase (Sodium Carbonate) to raise the level or pH Decrease (Sodium Bisulphate) to reduce.

Spa Water Chemistry differs from Pools in two ways:

1. Temperature
 - Greater tendency to form scale
 - Evaporation increases solids
 - Some pathogenic bacteria thrive
 - More body organics – oils, perspirates
 - Faster chemical reactions
2. Volume
 - High filtration rates (25minutes)
 - High bather loads
 - Chemical dosage sensitivity
 - Lower sanitiser reserves
 - pH fluctuations

Sanitising Spas

Chlorine

Spa Chlor or Dichlor (Sodium Dichloroisocyanurate) is the most favoured chlorine sanitiser for spas because of its near neutral pH. The problem with using Chlorine in spas is the formation of Chloramines, which give a strong odour and is an irritant to the throat and eye.

- Calcium Hypochlorite pH 11.0
- Trichlor Tablets pH 2.8
- Sodium Hypochlorite pH 14
- Dichlor/Spa Chlor pH 6.7

Bromine

Bromine has three advantages over Chlorine:

1. It is effective over a wider pH range
2. Bromomine formation is not negative as they are good sanitisers and have no odour/irritation
3. It can be used in floater or feeder systems

The disadvantage of Bromine, is its low pH (4.8) but good water balance will counteract this.

H2 OK and O2 Shock

The H2 OK and O2 Shock system provides a safe, simple and convenient treatment that successfully fights bacteria and algae that thrive in hot water. It is non-toxic and non-allergenic.

Ozone

Ozone requires an expensive generator. This does not produce any chemical by products but oxidises pathogens faster than any traditional processes.

Shock Dosing

Regular shock dosing should be applied to all the above sanitising systems. The two most commonly used products are:

- Spa Chlor – a chlorine source
- O2 Shock – an oxygen source