



# Treatment tips

for private swimming pools

## Contents

	Basic concepts .....	04
	Ospa's Royal Road .....	06
	Water values .....	08
	Pool cleaning .....	12
	Water change .....	14
	Water treatment products .....	16
	Weekly treatment .....	18
	Monthly treatment .....	20
	Annual maintenance .....	22

Congratulations on the purchase of your Ospa Water Treatment System. You have laid the groundwork for comfortable treatment of eye-friendly pool water that is kind to the skin. On the following pages, we would like to explain to you the most important aspects of pool water treatment, in a clear and simple manner.

Please take the time to read the individual chapters in detail, as well as the operating instructions for your specific devices. This small effort will be worth it, as it primarily depends on you whether your pool water always remains hygienic, crystal-clear and inviting. Even the best technical equipment, including fully automatic equipment, can only operate correctly if the necessary monitoring and operating resource supplies are ensured.

In designing our systems, we have done everything technically possible in order to make this easier for you. Irrespective of this, it is necessary and sensible to have the system inspected once a year by Ospa Customer Service, and to have consumable parts replaced. Like any technical equipment, your Ospa system will benefit from regular service.



## Basic concepts

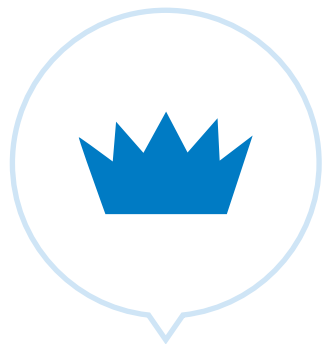
What causes contamination of the water in the swimming pool or whirlpool?

Swimmers introduce germs and organic substances to the pool water, in the form of skin particles, sweat, saliva, cosmetics, hairs, etc. Outdoor pools are additionally subject to environmental contaminants and increased algae growth. Without pool water treatment, increasingly favorable growth conditions for germs and bacteria would result, even in unused pools. We constantly encounter bacteria and viruses everywhere, but our natural defence mechanisms normally handle this contamination. Not all germs are pathogenic (will make you sick), but wherever non-pathogenic germs occur, germs which are harmful to humans can also occur.

Of course, in the case of a swimming pool or whirlpool used only by the family, the water is at relatively lower risk for germs being introduced; that is, the risk is manageable. Even in this case, however, a reliably operating, well cared-for treatment system can still prevent rapid worsening of hygienic ratios, promoted by the water temperature. Water treatment in the private pool sector essentially consists of the process steps of filtration, disinfection, pH regulation, dilution (addition of

fresh water), pool cleaning and heating. Only the optimal interaction of all of these components will enable a proper treatment result.

In general: The clarity of the water is not a sufficient indicator of its proper hygienic condition.



## Ospa's Royal Road

The perfect interaction of filtration,  
disinfection and control

### Filtration

The first stage of pool water treatment is filtration. It is responsible for circulating the pool water and retaining contaminants. The filtration system is like the trash bin of the treatment system, in which the withheld contaminants are deposited. This trash bin overflows if emptying does not occur on time.

For that reason, the filter must be regularly and thoroughly flushed. This cleans the filter layer and flushes the retained contaminants into the channel.

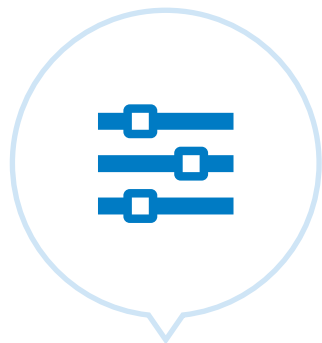
Whereas fully automatic filtration systems carry out flushing independently, semi-automatic filtration systems must be manually flushed in accordance with the operating manual. A good filtration system is a fundamental prerequisite for gentle pool water disinfection: Contaminants that are retained by the filter do not return to the water circuit and thus do not have to be killed off by disinfection.

### Disinfection

We rely from experience on the Ospa-BlueClear® Unit, because it guarantees the necessary hygiene. The disinfectant it produces kills undesirable organic substances such as viruses, bacteria and algae, and enriches the water with oxygen. The formation of oily, unsanitary coatings in the pool is prevented.

Chlorine has the unfair reputation of giving pool water the typical chlorine odor and causing burning eyes. This is only the case, however, when increased chlorine is required in order to counteract insufficient filtration capacity. This results in too much chloramine, the actual cause of unpleasant chlorine odor.

Chloramine are contaminants that have already been attacked by the chlorine, but not yet completely oxidized. In the right concentration, chlorine is eye-friendly and kind to the skin in well-filtered water.



## Water values

### Chlorine value

According to DIN 19643, the chlorine concentration in public pools should equal 0.3 to 0.6 mg/l. This value is also generally recommended for private pools.

### Redox value

The term "redox potential" is derived from the initial syllables of the words "reduction" and "oxidation". Its measurement determines the ratio of reducing to oxidizing substances in the pool water. Organic contaminants in the water have a reducing effect; the inorganic chlorine has an oxidizing effect. The redox potential is measured in millivolts.

The degermation rate is the decisive factor. At a redox potential of 750 mV or higher, certain germs are killed within 30 seconds.

Higher redox values achieve an even greater degermation rate – which means even better water disinfection.

### Pool water temperature

The temperature at which you operate your swimming pool is a question of personal taste. We believe that a pool water temperature of 30° C should not be exceeded in an indoor pool, for reasons of energy consumption. The air temperature in the swimming hall must be approx. 2° C higher than the pool water temperature; otherwise, too much water will evaporate and the hall air will require excessive dehumidification. A sufficiently sized dehumidification system, according to the principle of a heat pump, prevents condensation water formation and guarantees a comfortable climate in the swimming hall.

In the whirlpool, a water temperature of 36° C should not be exceeded. Clinical studies namely show that higher temperatures can cause circulatory disorders even in healthy people, especially in the case of extended use.

## pH value

pH value is a measurement which is of critical importance for your swimming pool treatment: it describes the acidic, neutral or alkaline properties of your water. These influence the effectiveness of the disinfectant and the compatibility of the water with substances as well as with skin and eyes. Regular, weekly monitoring and correction of the value as applicable is therefore absolutely required.



### pH value increase is caused by

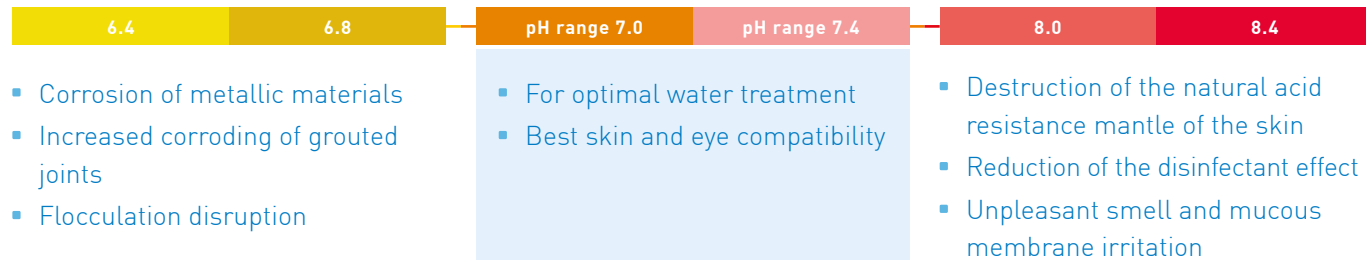
- the addition of treatment products with alkaline properties
- heating of the water
- water movement by swimmers or the counter-current system



### pH value decrease is caused by

- the addition of treatment products with acidic properties

### Effects of pH value



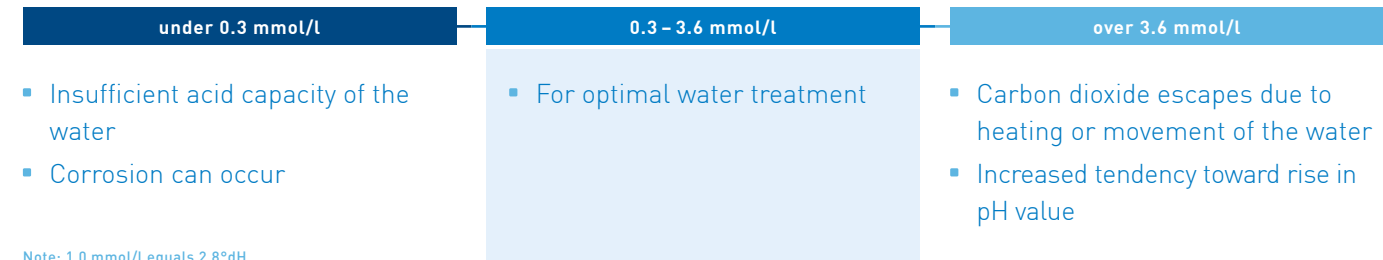
## Water hardness and acid capacity

Water hardness is designated by the total calcium and magnesium ions dissolved in the water. They enter the pool primarily through the filling water. Water hardness that is too high (> 21° dH) can lead to limescale in the pool or in the overflow channel under certain circumstances. As a result of heating and movement of the water, carbonic acid escapes and the calcium carbonate bonded to it precipitates. If no additional calcium and magnesium ions are supplied to the pool circuit and they also do not precipitate, the water hardness remains relatively constant over the entire life span. The use of marble chips increases the water hardness in a pool; a water softener system in the filling water line reduces it. The

acid capacity of swimming pool water corresponds to the concentration of hydrogen carbonate. At a value of less than 0.3 mmol/l (equals 1° dH (carbonate hardness)), the water no longer provides sufficient buffering capacity. As a result, corrosion can occur due to strong pH value fluctuations.

The optimal acid capacity lies between 0.3-3.6 mmol/l (2-10° dH). At an acid capacity of more than 3.6 mmol/l (10° dH), there is an increased tendency toward a rise in pH value as soon as carbon dioxide escapes due to heating or movement of the water. In addition, the precipitation of calcium carbonate is promoted.

### Effects of acid capacity



Note: 1.0 mmol/l equals 2.8°dH



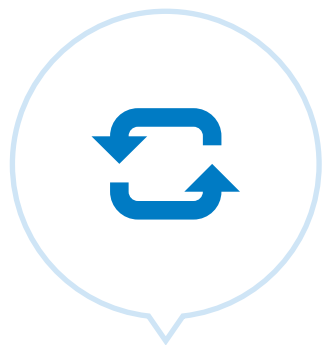
Pool cleaning

Regular pool cleaning is necessary to maintain hygienic conditions in the pool. Germs and fungus can establish and reproduce under the deposited contaminants, inaccessible to disinfectant. In addition, border-zone water layers are dissolved and supplied with disinfected water. Consequently, cleaning with the pool vacuum cleaner is regularly required, no later than at the start of visible contamination.

In outdoor pools, pool cleaning can be required daily; in indoor pools, it should be carried out weekly. Fully automatic pool vacuum cleaners, such as Ospa offers in various models/versions, are diligent helpers for this. They comfortably and automatically clean the pool floor without adding additional load to the filtration system. Ask your Ospa advisor or customer service technician about the unit best suited for you.

### Advantages of the Ospa Pool Vacuum Cleaner

- They comfortably and automatically clean the pool floor
- No additional load on the filtration system, as the vacuum cleaner operates independently
- Low voltage guarantees maximum safety
- Easily handling



## Water change

In public swimming pools, an addition of 30 liters of fresh water is required per swimmer, because the concentration of typically dissolved substances which cannot be eliminated can only be cost-effectively kept within limits by fresh water. Increasing thickening of the water increases electrolytic conductivity and, consequently, risk of corrosion. This should also be noted in private pools. If the filtration system is regularly flushed, the required fresh water addition is usually ensured by the automatic pool refill.

When refilling of the pool is required depends extensively on compliance with operating instructions. An annual refilling can be necessary if flushing does not take place as specified. Outdoor pools must always be refilled before the start of the new season. In every case, a thorough cleaning must be performed and all lines completely flushed before refilling the pool. Should cleaning agents (detergents) have entered the pool water, replacement of the filter material may even be required under certain circumstances.

Swimming pools should not be filled with hardness-stabilized water, as hardness stabilizers are usually added to this. These essentially consist of phosphatic agents and can negatively influence the measurement and regulation technology, as well as promote algae growth. Consequently, they have no place in pool water. Fill-water with a substantial iron or manganese content offers poor prerequisites for smooth operation. The metals dissolved in the water oxidize under the effect of the disinfectant. This is first indicated by a yellow, greenish or brown discoloration. In the case of larger volumes and complete oxidation of these metals, brown to black-brown deposits or flakes occur in the pool. The precipitation is accelerated even further by higher pH values. Copper dissolved in the water can also cause a greenish discoloration of the pool water and dark, nearly black deposits. In general, it is advisable in such cases to add a flocculant to the water.





## Water treatment products

Your regulation and dosing systems are coordinated and adjusted to the active ingredient concentrations of Ospa Water Treatment Products. We therefore recommend using only original Ospa Water Treatment Products. Operational faults and water quality defects are possible under certain circumstances when using third party chemicals. It is also no longer possible to provide correct and authoritative information in connection with our advisement and support if unknown, possibly untested agents are used. When using unsuitable cleaning agents, even small volumes entering the pool water can be enough to sustainably disrupt treatment and even to make the filter material unusable. The interaction of additives can also cause problems which are difficult to solve.

### Ospa KH/pH Raise & pH Lower

- High-quality, powdery, easily soluble agent for raising and lowering carbonate hardness (acid capacity) and pH value
- Safe handling through clear labelling as well as stable packaging in accordance with regulations, with comprehensible usage instructions

### What does not belong in pool water?

- Cleaning agents and household cleaners
- Disinfectants with organically stabilized chlorine
- Disinfectants with algicides and pesticides
- Hardness-stabilized, phosphatic fill water
- Fill water containing manganese and iron





## Weekly treatment

### Check water values

- Measure water values with the Ospa Water Test Set and compare with the display on the Ospa BlueControl® or Ospa CompactControl® Display

#### Guideline values:

pH value: 7.0–7.4

Redox value: > 750 mV

Free chlorine: 0.3–0.6 mg/l

- In case of deviation of the pH value by more than 0.2 pH, readjust the pH electrode with the buffer solution
- In case of deviation of the chlorine value, readjust the chlorine electrode (see instructions)
- **For redox regulation:** Measure chlorine content with the Ospa Water Test Set. In case of deviation, the base chlorination must be adjusted accordingly on the Ospa-BlueClear® disinfection unit (see instructions)

### Ospa-BlueClear® disinfection unit

- Check salt reserve and refill
- Briefly open MK drain valve of the Ospa-BlueClear® unit and wait until clear water comes out (max. 5 seconds)

### Measurement station

- Check measurement water strainer and clean as applicable
- Check pressure gauge on measuring vessel (Negative pressure guideline value: -0.05 bar)

### Filter

- **Filter flushing:** Flush min. 5 minutes for automatic and manual filters
- **Check pressure gauge:** Filter pressure may not be over the marked value by more than 0.1 bar. Flush filter as applicable

### Visual inspection of the system

- Carry out visual inspection of all systems and devices

### Pool cleaning

- Check skimmer strainer insert
- Vacuum pool floor

### Pump pre-screen

- Check pump pre-screen weekly in the case of outdoor pools; monthly in the case of indoor pools. Tightly seal the pre-screen lid (see instructions!)

### pH Dosing System

- Check pH dosing system and fill as applicable (Specifications on volume to be added can be found on the packaging of the water treatment product. Observe safety instructions!)
- In the case of KH/pH Raise, regularly stir the content of the dosing container well (observe safety instructions!)



## Monthly treatment

### Check water values

- In addition to the weekly checks, the acid capacity (carbonate hardness) must be tested at least once per month with the Ospa Water Test Set

**Guideline values: 0.3-3.6 mmol/l (2°-10° dH)**

### Ospa-BlueClear® disinfection unit

- Check MK container and refill Ospa Marble Chips as applicable

### Water reservoir (only in pools with overflow channel)

- Check water reservoir and clean as applicable

### pH Raise injection point

- Remove and clean pH Raise injection point (see label and operating instructions)

### Channel grating (only in pools with overflow channel)

- Clean overflow channel. Also clean underside of channel grating. No cleaning agents may enter the pool water; be sure to open the gutter drain to the channel!

### Care of stainless steel parts

- The stainless steel we use provides a maximum degree of corrosion protection. Nevertheless, this stainless steel must also be regularly maintained and cleaned in order to prevent corrosion. Therefore, regularly clean stainless steel parts, preferably monthly, with a suitable cleaner according to our stainless steel care instructions





Annual maintenance

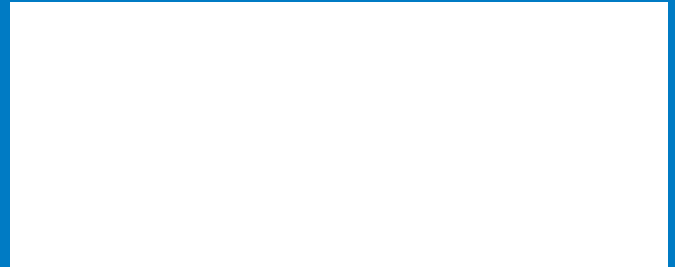
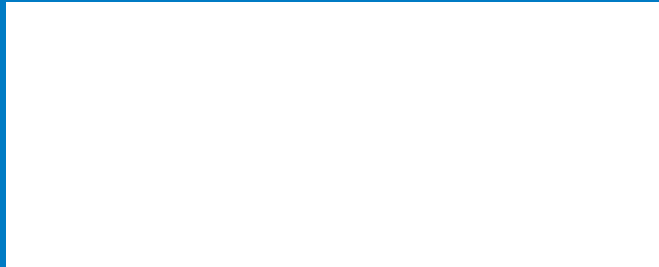
### Ospa factory customer service

It goes without saying: Every piece of technical equipment benefits from regular service. To ensure that you will have years of enjoyment from your Ospa system, we recommend an annual inspection by Ospa factory customer service.

Here you will find your designated Ospa factory customer service employee: [www.ospa.info](http://www.ospa.info)



Your experts in wellness water



## Ospa Schwimmbadtechnik

Tel.: +49 7171 705-0

Fax: +49 7171 705-199

E-Mail: [ospa@ospa.info](mailto:ospa@ospa.info)

Internet: [www.ospa.info](http://www.ospa.info)

The logo for Ospa, featuring the word "ospa" in a bold, italicized, lowercase sans-serif font.