

NOVOSWIM

OZONATION SYSTEMS FOR RESIDENTIAL POOLS AND SPAS



WHAT ARE THE FACTS ABOUT SWIMMING POOLS?

Chlorine reacts with organic waste and forms a large number of highly toxic chloro-organic compounds. These are well known carcinogens, they are also very poisonous to marine life. In swimming pools these toxins may accumulate to very high concentrations, especially if a consistent flush with makeup water is not in place. Red eyes, rashes are the most instant and obvious effects. These signs also indicate a much more serious long-term risk to human health due to the accumulative effect of chloro-organic compounds in the human body. Public pools usually have a consistent makeup water flow to dilute these dangerous compounds. In private pools, where makeup water flow is virtually nonexistent, it is even more important to avoid any use of chlorine. On average, the human body will absorb about half a litre of pool water every hour. It is therefore very important that the pool water quality complies with the standards for drinking water supplies.

More than 30,000 swimming pools in Europe are treated with ozone. In North America the ozone dosage is usually greatly underrated, and the ozone effect is mostly negligible. Overpriced but low quality and output ozone equipment is sometimes sold with a claim that chlorine is needed anyway, harming the ozone industry greatly. As result, many health inspectors believe that ozone cannot maintain sanitary residual. The real half-life of ozone in a pool is approximately 15 minutes. In a properly circulated pool every area is contacted in about 10 minutes. All ozone systems from NOVOZONE LTD are sized properly to the size and method of use.

WHAT ARE THE MAIN ADVANTAGES OF TREATING POOL WATER WITH OZONE?

- Ozone assists flocculation of organic waste materials, thus enhancing the effectiveness of sand filters — it also directly decomposes organic waste via oxidation.
- A properly sized ozone system kills all bacteria, viruses, fungus and parasites.
- After ozonation, all unused ozone slowly decomposes to normal oxygen and remains dissolved in the water up to the point of oxygen saturation. This makes pool water clean, sparkling, and appealing.
- Ozone leaves no toxic residuals in the treated water. Undissolved ozone gas is removed prior the treated water enters the pools. Dissolved ozone is not known to cause any adverse health effects.
- Ozone is produced onsite and it does not require storage or transport.
- While undissolved ozone off-gas is easy to separate from the treated water, chlorine gas is being constantly released right above the pool surface. As a result of negative experiences gained at many of the chlorine treated public pools, many people choose not to build their own private swimming pool. Often public pools are largely ignored by the public, and poor attendance must be constantly subsidised by our taxes.
- Ozone ends water discharge liabilities.
- Ozone prevents calcium carbonate scaling and removes existing scale, reduces the corrosion rate of exposed metals, and cleans and prevents greasy sediments on pool sides.
- A properly sized ozone system pays for its initial cost in about four years by savings on chemicals and the cleaning cost. The health benefits can hardly be measured with money. The aesthetic value of the whole pool is also an important benefit.



CHLORINE IS CONTROVERSIAL

Ozone has become known for its major health benefits for bathers, and is being used by countless hospitals and rehabilitation centres. A chlorine-assisted small ozone system may be acceptable where economics does not allow for the superior solution.

During the ozone start-up in pools where chlorine was previously used, ozone may cause a few hours of foaming, flocculation, and milky water colour. These are the results of a proper oxidation process, a one-time event with no harmful effects. The filtration system will remove the oxidation by-products and the water will become sparkling clean and sky-blue in colour with a pleasantly clean smell.

There are no known negative effects of swimming in ozonated water. There has never been a death due to ozone (while over 100,000 people are documented to have died from an exposure to chlorine).

Being a much stronger oxidant than chlorine, ozone can do everything that chlorine can do, and more. Hundreds of scientific papers confirm millions of successful complete or partial cures of medical problems. Novozone does not make any medical claims — leaving the medical field to whom it belongs — the Medical Professionals. Novozone does not provide detailed information about any medical use of ozone. The relevant literature is available at the International Ozone Association, and from many other sources. We are merely trying to point out that ozone does not cause any adverse effects when used instead of, or in conjunction with, chlorine in the swimming pools.

HOW TO IMPLEMENT OZONE TREATMENT IN YOUR SWIMMING POOL

There are a great variety of swimming pools and spas in the world. Novozone's engineers are ready to review and utilize your pool and existing equipment (such as tanks, pumps and filters), to be fitted for their new purpose. The systems are easy to operate and maintain.

There are a number of ways for treating a swimming pool with ozone, from the cheapest outdoor small system assisted with chlorine, to the largest indoor pool using only ozone and a fully automated system. Many variations are possible in between these two ends. All indoor pools require a contact and off-gas tank.

1. Inexpensive, ozone assisted water purification systems:

A small ozone unit assists with partial removal of organic waste by flocculating around 80% of the organics prior to the main sand filter. A 0.2—0.4ppm chlorine residual is also needed.

2. Manually operated system for water purification and partial sanitation:

A full-size ozone unit provides water purification and disinfection. This unit may not protect against algae growth and may not completely cover demand during extreme overload.

3. Ultimate automatic water purification and disinfection with algae removal:

An oversized system with automatic control of ozone production as per actual demand, based on ORP reading. When algae growth becomes obvious, a shock treatment with ozone can be simply achieved by activating the ORP override switch for one night, or setting the programmed ozone level to 780 mV (0.15 mg/L = 0.15 ppm).

This level is still safe and allowed for direct exposure to human skin for an extended time. The ORP reading is measured on water return from the pool.

The ORP controller regulates the ozone duty based on the real ozone demand. No other chemicals are needed except for occasional pH, alkalinity and hardness balancing.

