

# **OZONE vs CHLORINE**

- 1) Ozone is over 3000 times faster to purify water.
- 2) Unlike chlorine, ozone leaves no harmful chlorinated by-products in the water, ozone quickly reverts back to pure oxygen if unused.
- 3) Chemical water treatment leaves long-term chemical effects on the environment, some of which are negative. Ozone does not.
- 4) Ozone is the strongest, fastest, commercially available disinfectant and oxidant for water treatment.
- 5) Ozone oxidation reactions take place several thousand times faster than those of chlorine for destruction of bacteria, viruses, yeast, molds, cysts, mildew, and most other organic and inorganic contaminants.
- 6) Ozone in appropriate doses can treat all water borne pathogens, while chlorine cannot (given practical, safe doses.)
- 7) Ozone is generated on site and does not require storage.
- 8) You cannot over-dose with ozone as unused ozone escapes out of the water and reverts to oxygen.
- 9) Ozone disinfection qualities are not dependent on pH, nor does the addition of ozone affect the pH of water.
- 10) Ozone oxidizes and destroys oils and other contaminants in water.
- 11) Ozone can significantly reduce levels of harsh chemicals such as chlorine and their by-products.
- 12) Ozone acts as a micro-flocculent, aiding in the removal of minerals such as iron and manganese.
- 13) Ozone leaves no unpleasant chemical taste or smell.
- 14) Ozone dissolved in water will not irritate skin, nose, or ears, nor will it dry out or leave a chemical film on skin.
- 15) Ozone's effectiveness can be measured with a simple ORP meter.
- 16) Ozone is less corrosive than chlorine in water.

17) In view of results of several studies examining the safety of chlorination, many municipalities are wanting to remove chlorine from their water treatment plants all together. The cause for this concern is the presence of chloroforms and other halomethanes in post-chlorine treated natural water. The most commonly encountered contaminants of this type are bromomethanes  $\text{CHClBr}$ ,  $\text{CHCl}_2$  and  $\text{CHBr}_3$  along with the afore mentioned chloroform all of which are suspected carcinogens.

18) With the advances in the technology used to generate Ozone, Ozone is becoming more affordable to install and cheap to operate. Typically an Ozone installation will pay for itself over 12 months in chlorine savings.

19) Some say a salt chlorinator is efficient, but remember that over a period of time the salt in the water will damage the concrete and tiling around your pool and also create a toxic bath full of carcinogens.

20) Your body absorbs pool water while swimming, do you really want your body absorbing huge amounts of chlorine and it's by-products? Most competitive swimmers will refuse to swim or train in a chlorine pool and chlorine has already been banned in many countries because of it's negative affects.

### **HOW BAD IS CHLORINE?**



According to the U.S. Council Of Environmental Quality, “Cancer risk among people drinking chlorinated water is 93% higher than among those whose water does not contain chlorine.”

Dr. Joseph Price wrote a highly controversial book in the late sixties titled “Coronaries/ Cholesterol/ Chlorine” and concluded that “ nothing can negate the incontrovertible fact, the basic cause of atherosclerosis and resulting entities such as heart attacks and stroke, is chlorine.”

Dr. Price later headed up a study using chickens as test subjects, where two groups of several hundred birds were observed throughout their span to maturity. One group was given water with chlorine and the other without. The group raised with chlorine, when autopsied, showed some level of heart or circulatory disease in every specimen, the group without had no incidence of disease. The group with chlorine under winter conditions,

showed outward signs of poor circulation, shivering, drooped feathers and a reduced level of activity. The group without chlorine grew faster, larger and displayed vigorous health. This study was well received in the poultry industry and is still used as a reference today. As a result, most large poultry producers use de-chlorinated water. *“It would be a common sense conclusion that if regular chlorinated tap water is not good enough for the chickens, then it probably is not good enough for us humans!”*

There is a lot of well founded concern about chlorine. When chlorine is added to our water, it combines with other natural compounds to form Trihalomethanes (chlorination by-products), or THMs. These chlorine by-products trigger the production of free radicals in the body, causing cell damage, and are highly carcinogenic. “Although concentrations of these carcinogens (THMs) are low, it is precisely these low levels that cancer scientists believe are responsible for the majority of human cancers. Breast cancer, which now effects one in every eight women in North America, has recently been linked to the accumulation of chlorine compounds in the breast tissue. A study carried out in Hartford Connecticut, the first of it’s kind in North America, found that, “women with breast cancer have 50% to 60% higher levels of organochlorines (chlorination by-products) in their breast tissue than women without breast cancer.”

\*\*\*Please note that Chlorine does still have it's uses. When a little Chlorine is used on an O3 pool to clear up algae it works exceptionally well as the O3 super activates the Chlorine and cleans up the residuals. This is a lot healthier way to rid algae as opposed to some algaecides\*\*\*