

TimeOut Spas

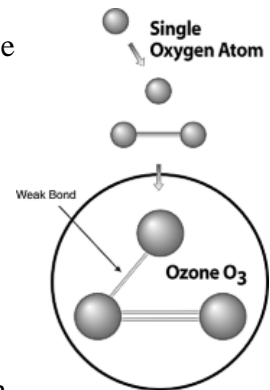
Ctra N-340a, Km 290, 29780 Nerja, Málaga · Tel: 952 52 43 94

Ozone Systems - For Residential Spas

WHAT IS OZONE?

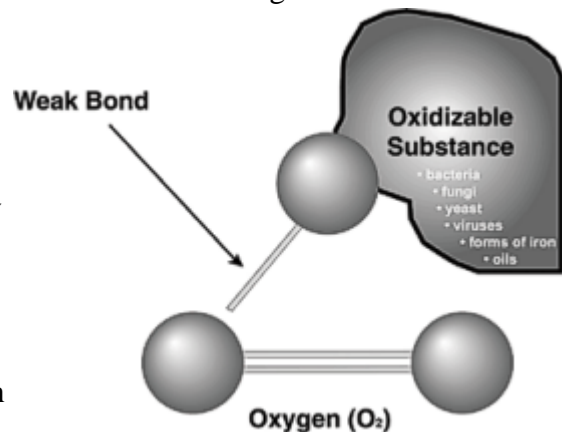
Ozone is a sky-blue gas and is formed naturally by the action of the sun's UV (ultraviolet) rays splitting an oxygen molecule (O₂) and one individual oxygen atom attaching itself to another oxygen molecule. This is ozone and is expressed as O₃. It can also be formed when a large electrical discharge passes through oxygen (eg. lightning). It is a relatively unstable, highly toxic gas which decomposes to reform oxygen and is a very effective bactericide.

- Ozone is "active oxygen", nature's special molecule (an ozone molecule consists of three oxygen atoms).
- Ozone is created in nature by the combination of oxygen in the air and ultraviolet rays or by the electrical discharge during a lightning storm.
- Ozone is a natural purifier (meaning no harmful chemical by-products are created during purification)
- Ozone has a clean, fresh scent like that noticed after a rainstorm.
- Ozone is the most powerful oxidizer that can be safely used in a swimming pool or spa.
- Ozone is the alternative water purifier to traditional spa chemicals such as chlorine and bromine.



How Ozone Systems Work

Ozone treatment has been used for many years, particularly in Europe, for the treatment of municipal water supplies and also large commercial and Olympic pools. Developments in ozone technology over recent years has enabled manufacturers to produce smaller more economical generators which are suitable for domestic spas. Because of its strong oxidization and disinfection mechanism, ozone is very useful for domestic water treatment although safety considerations limit its application and it is only used as a supplementary system in conjunction with other sanitizers. Ozone is an unstable compound generated by the exposure of oxygen molecules to a high energy electrical discharge or ultraviolet rays. The weak bond holding ozone's third oxygen atom is what causes the molecule to be unstable and thus, very effective. An oxidation reaction occurs upon any collision between an ozone molecule and a molecule of an oxidizable substance (i.e. bacteria, fungi and mold) and the weak bond splits off leaving oxygen as a by-product. During an oxidation reaction, organic molecules are changed and dissolved metals are made no longer soluble. Ozone is one of the most effective disinfectants and oxidizers available and once introduced into the water it starts to work immediately, killing bacteria and oxidizing organic waste. As ozone is not highly soluble in water, the ozone must be injected into the water by either a compressor or a venturi system. However, as ozone is also toxic, all traces of it must be used or removed prior to reaching the spa. As there can be no residual ozone contained in the water, some other form of residual



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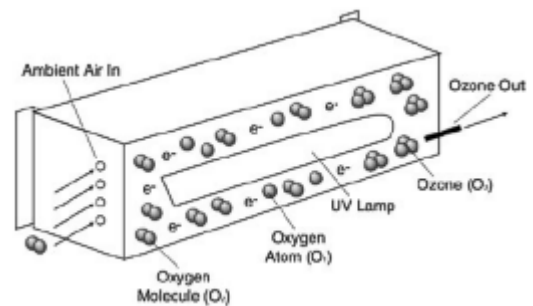
sanitizer like chlorine or bromine must also be used in order to provide continuous protection when the ozone generator is not running. Naturally, using ozone as an oxidizer means a much smaller amount of chemical sanitizer will be needed to sanitize the spa and provide the necessary residual sanitizer level.

Types of Ozone Systems

There are two different ozone systems commonly used today in spas: the Ultraviolet (UV) technology and Corona Discharge (CD) technology.

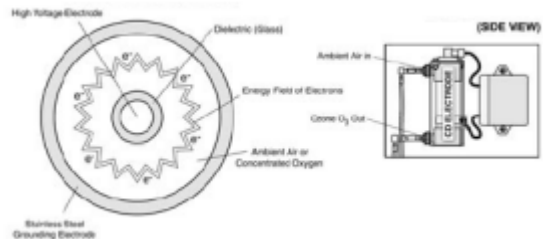
Ultraviolet Light (UV)

Generation of ozone using UV is achieved by passing air over a UV light source and then mixing the gas with water.

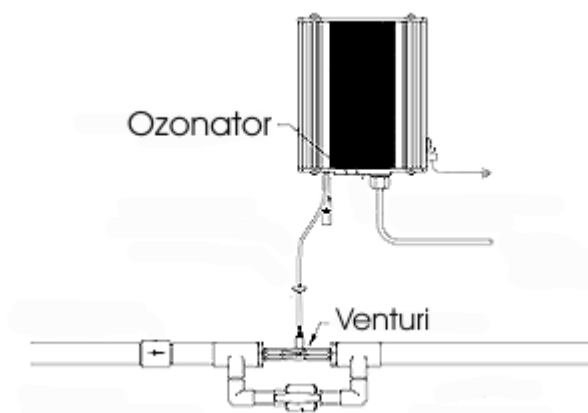


Corona Discharge

In this method, air is passed through an electrically charged chamber. What could be called a miniature lightning storm is created in the chamber which electrically converts the oxygen into ozone.



Installation of Ozone Systems



Ozone systems can be installed in several different ways however the most common way is with a venturi injector which is plumbed into the main return line after all other spa equipment, ie heater and pump. It is designed to operate in unison with the spas main time clock and sanitation takes place automatically whenever the filtration system operates. The other way for installing an ozonator is through the suction side of your spa pump. In this installation, the ozonator becomes a secondary oxidizer providing a method to degrease and clean the filter. In either case the effectiveness is the same and the water that the ozone has been injected into can be returned to the spa either

through the massage jets or, optimally, through a dedicated jet.

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Ozonator Maintenance

Corona discharge ozonators require no maintenance although they contain a chip that needs to be replaced every few years of operation. On some models it is necessary to replace the entire unit as the chips are not available or the cost of the chip and its replacement is the same as a new unit. Some have a window or other viewing port through which you can see if the device is still working or not.

Ultraviolet ozonators have a fluorescent light that can burn out and can be replaced when necessary. Consult with your dealer as to what maintenance is required for your ozonator and its cost and above all...

Enjoy Your Spa!

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