Ozone Water Purifiers offer the following advantages compared to a system which relies only on chemicals such as chlorine, bromine or salts. With ozone, some chemicals are typically still used, but reduced by 60 to 90% - to a level where you cannot notice or smell the chemical at all:

- **Ozone is a powerful bug killer.** (90 times stronger oxidant than chlorine and kills cellular microbes 3,000 times faster than chlorine.)
- **Ozone can kill parasites such as Cryptosporidium and Giardia.** (Chlorine seldom does this.)
- **Ozone generates no dangerous by-products.** (Chlorine and organic matter create trihalomethanes which are carcinogens.)
- **Ozone is generated on site from electricity.** The Ozone Water Purifier requires no consumable.
- **Ozone is economical.** For example, the PE1-50 uses less than 3 cents per day of electricity and chemical usage is reduced dramatically.
- **Ozone is gentle on people.** It will not irritate eyes or skin or discolour hair or clothes. And there is no chlorine smell.
- **Ozone can create an unrivalled clear sparkling colour in your pool.**
- **Ozone is environmentally friendly.** It starts as oxygen and finishes as oxygen. That is why, for example, it is injected into bottled water by spring water companies. It is also why all Olympic pools now use ozone - from Los Angeles to Sydney to the Beijing Olympics.

**Leading Edge Technology**

High technology products for electronically purifying the water in swimming pools and spas in homes and other residences. These innovative products generate environmentally friendly levels of ozone for eliminating bugs, microbes and odours in your water. And only with ozone will you create an unrivalled beautiful clear sparkling colour in your pool or spa.

Ozone Purifiers are widely used for treating drinking water. Now this "hi-tech" electronic solution is available for your pool or spa. Model PE1-50 is designed for spas, whilst the larger PE2 is perfect for pools. A wide range of accessories are also available.

Ozone Purifiers are simple to install. All you need is electricity.

**How Ozone Works**

Ozone is made from life-giving oxygen. The oxygen is passed through an electric field (a plasma field in fact), where ozone is created. This ozone is then dissolved in water where it permanently removes microbes and off-colours by a process of oxidation.

Then, when it has done its job, it automatically converts back into oxygen again. This oxygenates your water and leaves no chemical residue on your skin or clothes. This is why it is so environmentally friendly and why government bodies are introducing it worldwide to replace chemicals and liquids in drinking water. All you need is electricity and you too can join the move to ozone.
Spa Water Purifiers

For homes and other residences

Spa Purifier

The PE1-50 is designed to connect to the plumbing of your spa pump system. It is rich with great features:

- High concentration ozone, perfect for dissolving into spa water. The ozone is generated by using plasma emitters (corona discharge).
- Unique fully potted enclosure, electrically insulated.
- Electrical certifications, including EMI (no interference with TVs, mobile phones, etc).
- Extra long-life, high-quality design. Our components have design lives up to 10 times greater than cheap alternative products.
- Nominal output of 50 mg/hr at a high concentration for dissolving into spa water.
- Other outputs available.

The versatile PE1-50 can be installed in 3 ways:

1) Connected to a Footwell Injector (NF6 accessory), which is a dedicated water jet plumbed into the lower wall of the spa. When the pump runs, ozone is sucked into the water.

2) Connected to a Venturi, which is a bypass system positioned after the recirculation water pump and filter.

3) Plumbed into the spa's air venturi system. For ozonated water the air intakes are left closed.

Footwell Injector

The easiest and most cost effective way to inject ozone into your spa is to use a footwell injector. This is a mini water jet. It is mounted through the wall of the spa in the vicinity of the spa's foot well. Simply connect silicon hose between it and the PE1-50, and the system is ready to use.

Air Compressor

For some applications it is desirable to bubble ozone into the spa, using a mini air compressor. Swim spas are one such example. In this case, order the CS1 mini compressor, which is designed to directly connect to the PE1-50 purifier. The compressor comes with an adjustable flow rate valve.
**Swimming Pool Purifier**

The PE2 is designed for the family swimming pool. It includes a wide range of features:

- Plasma emitters (corona discharge).
- A nominal output of 1000 mg/hour, at a high concentration for dissolving into pool water.
- Extra long-life, high quality design. The components have a design life up to 10 times that of alternative products.
- Unique fully potted enclosure, electrically insulated, with EMI certification.

**Small Pools**

For most household swimming pools, only one PE2 is required together with one KV19 Venturi Kit (see below). The PE2 and Venturi Kit are usually positioned before the pool filter (see Method 1 below). The Venturi Kit is simply "plumbed" to the main water pipe. The PE2 only needs to be connected to electricity.

**Large Pools**

For larger pools, multiple PE2’s are required. These simply snap together like "lego blocks". One or two rows can be used as shown below. The output is then connected to 1 or more Venturi Kits.

**Typical Configuration of PE2 in a Swimming Pool**

**Method 1: Budget Method**

**Method 2: Best Practice Method**

**Venturi Kits**

Venturi Kits are precisely designed and include:

- Venturi injector nozzle, Ozone resistant.
- Ball valves, ozone resistant.
- Main flow and bypass pipe work.
- Two pressure gauges.
- Fittings and connections.

Specifications subject to change
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Ozone science (for microbe + colour control)

1. The air contains pure oxygen molecules.

2. Ozone is formed by the Plasma emitters and then dissolved into the water.

3. The third oxygen atom attaches to a pollutant to oxidise it to a harmless molecule.

4. Leaving pure oxygen again.

The problems with ultraviolet products (radiation type):

- When used correctly they can kill microbes, but they have no effect on any other pollutants, such as:
  - organic contaminants - off-tastes
  - minerals - off-colours
  - chlorine - salts and scale.

- Their ability to kill microbes reduces dramatically:
  - if their is organic load or sediment in the water, which shields the microbes from the UV rays.
  - if the UV tubes are not regularly cleaned.
  - if the water flow rate is too high.
  - Their ability to kill microbes reduces dramatically:

- The UV radiation is carcinogenic if it escapes from the chamber.

The problems with ultraviolet products (ozone producing type):

To kill microbes in pool or spa water requires a certain minimum concentration of "ozone in air" to dissolve into the water. UV products simply cannot make enough ozone to achieve this. This is why the WQA (the international Water Quality Association) states:

"It is important to note that ultraviolet generators cannot provide sufficient ozone concentrations to provide effective disinfection. It is not recommended to use UV-based ozone systems for inactivation of micro-organisms . . ."

Useful Conversions

1 m = 1000 mm = 3.38 feet
1 kg = 1000 g = 2.20 pounds
1 Pa = 0.102 mm water = 0.004 inches water
1 l/s = 3.60 m³/hr = 2.12 ecfm
1 kW = 1000 W = 1.34 hp
Ozone: 1 ppm (by volume) = 2 mg/m³ = 2000 µg/m³
(at 1 atmosphere and 25°C).

Pool & Spa Water Purifiers

Ozone Environmental Technology, Mailing Address: PO Box 92 Balmain NSW 2041, Australia. Phone: 02-9810 3662 Fax: 08-8260 4233 Email: sales@ozonetec.com Specifications subject to change

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Water Purifier Code –

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<tr>
<th>Application</th>
<th>PE1-50</th>
<th>PE2</th>
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<tr>
<td>Spa</td>
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<tr>
<td>Pool</td>
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<td>1000</td>
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</tbody>
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Air/gas flow rate (litre/minute) "recommended only" 50 4

Rated power, nominal (watts) 20 100

Oxidant concentration (ppm) "at the recommended flow rate" 415 2080

Weight, nominal (kg) 2 6.5

Dimensions, as standard - Width W (mm) 122 167
- Length L (mm) 72 207
- Height H (mm) 167 170

Capacity of pool/spa to suit (litres) - 5000L spa or 25,000L plunge pool 120,000L pool
(if above guideline, use multiple purifiers) "best practice" - 3000L spa or 10,000L plunge pool 50,000L pool

Features - plasma ozone emitter, tubular
- fully potted enclosure
- self draining emitter
- certified: no electromagnetic interference
- outlet spigot included (mm)

Accessories - Venturi Kit
- Footwell Injector
- Silicon Hose
- Check Valve
- Wall Diffuser
- Floor Drain

Application notes

1. These products are designed for private pools, not public commercial pools. Ensure you satisfy any Government regulations in your area.
2. Ozone Purifiers are recommended to be used in conjunction with a reduced level of chemicals to maintain a residual disinfectant when the Ozone Purifier is turned off. A common residual is 1 mg/litre (1 ppm) of chlorine.
3. Ensure there is air movement above your pool (minimum 5 air changes per hour) to dissipate any vented ozone. The safe threshold for ozone in air is 0.05 ppm. If in doubt, use the EZ1 tester to measure ozone levels.
4. Any pool or spa should be measured regularly to check microbe levels, and use the DPD method. Comprises a set of tablets. Fits in your shirt pocket.
5. Our services (such as Oztec) help you choose the products for your application. They are free because we are equipment suppliers, not consultants. We rely on customers and their agents to safely select products and design connected systems, to suit their application. We warranty our products, not your results.
6. Read Instruction Manual before use. For example, locate Purifier away from anyone in pool or spa. Ensure you satisfy any Government regulations in your area.