



Swimming Pool & Spa

Ultraviolet Technology
of Australasia

UV water disinfection systems

**How safe is the
water in your
swimming pool
or spa?**



**UVTA making safer water
for everybody**

UVTA UV Disinfection systems for swimming pools and spas

Without proper disinfection, the water in your swimming pool or spa can become contaminated with micro-organisms and organics that can create unpleasant water or even serious health problems eg. legionnaires' disease.

But how do you stop this problem without resorting to harsh chemicals or systems that require high maintenance?

It is easy when you've got a UVTA UV disinfection system.

The UV system is a simple and easy to maintain system that disinfects the water in swimming pools and spas using hydrogen peroxide and ultraviolet light.

And because it doesn't use any harsh chemicals, it is safer and more cost-effective to use than other water disinfection systems.

In fact, the UV system is designed specifically for warm water to create water quality that conforms to Health Department standards and will kill organisms associated with Legionnaires Disease, as well as amoeba *.

It is also ideal for hydrotherapy pools, water slides and hot tubs.

How does it work?

The system should be maintained at a level of Hydrogen Peroxide (H_2O_2) in the water (a minimum 30 to 45 ppm residual).

Hydrogen peroxide is superior oxidising agent that removes chemicals and organics that would foul the water and interfere with disinfection in the UV unit.

The germicidal ultraviolet light then disinfects the water when it is exposed to it. The ultraviolet unit contains a non-fouling activated fluoropolymer (AFP) tube, through which the water flows.

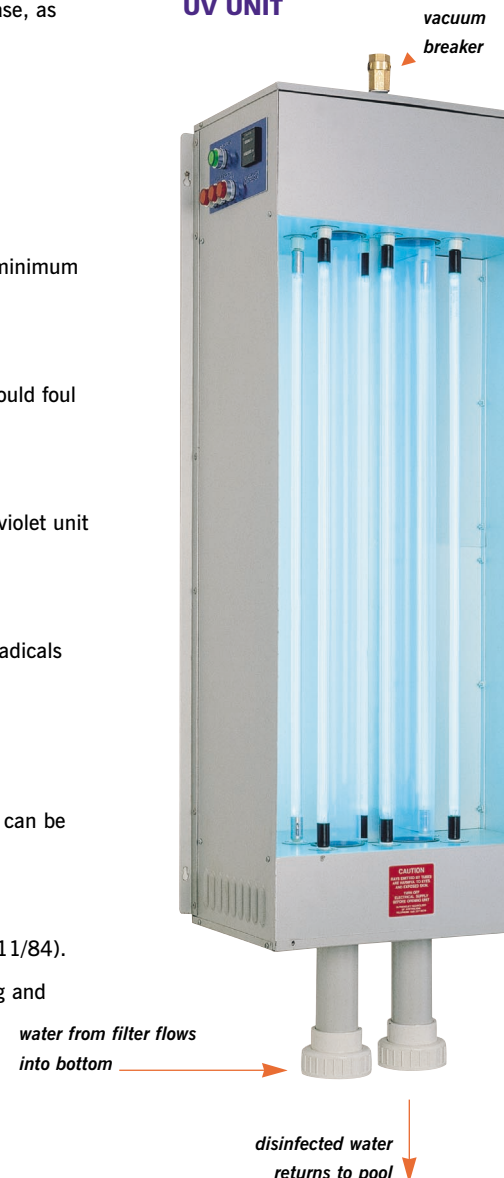
In addition, ultraviolet light reacts synergistically with H_2O_2 to create OH radicals. These radicals are viable for only a few seconds, but in that time they oxidise the remaining organics and chemicals, leaving the water fresher for longer.

Note: Hydrogen Peroxide (H_2O_2) is the preferred oxidant to use with UV although chlorine can be used if desired.

* particularly Pathogenic *Naegleria fowleri* (Department of Health WA Report no: WECH/211/84).

* UVTA guarantees not to use any quartz sleeves in their UV units, thus eliminating fouling and fragility problems.

UVTA MODEL UV UNIT



Why use a UVTA UV disinfection system?

UV combined with hydrogen peroxide:

- is easier to handle than many other chemicals
- is undetectable to the pool user when used at the recommended level.
- is easily mixed with warm, agitated water and remains in use until it oxidises the unwanted, inanimate materials.
- is pure and doesn't build-up.
- is non-corrosive to equipment and facilities when used at the recommended level.
- is non-foaming and practically odourless.
- does not form scale.
- doesn't need cyanuric acid.

Installation

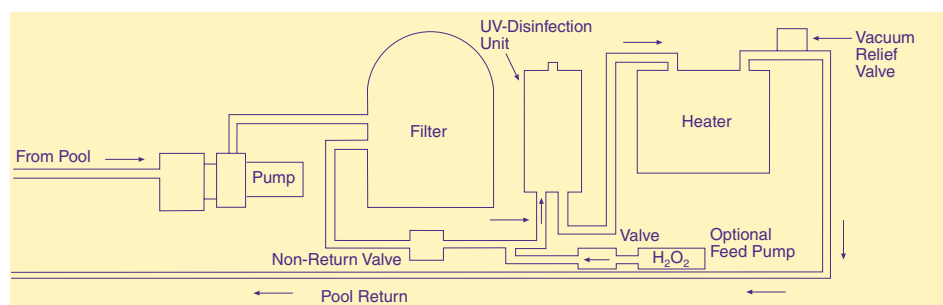
The UVTA UV unit is installed in a ventilated, weatherproof area in the water circuit on the outlet side of the pool filter and wired to operate with the pump.

The Hydrogen Peroxide (H_2O_2) may be fed by hand or with a low-volume chemical feed pump, such as a blue-white peristaltic pump. Feed pumps and reservoirs are available through UVTA systems representatives.

The UV unit and feed pump must be wired to operate safely and simultaneously with the filter pump.

If the installation is a commercial spa, or pool run the filter pump and ultraviolet unit for 24 hours a day.

The auto peroxide feed pump can be time-clock controlled.



**LAYOUT OF UV UNIT
INSTALLATION**

The AFP tube in the UVTA system is rated at a maximum operating pressure of 207 kPa (30 PSI). It is not designed to operate under a vacuum at any time. A vacuum (even a slight one) will cause the AFP to collapse and eventually fail. For this reason, it is important to install a non-return valve in the inlet water circuit, a vacuum breaker is incorporated into the applicable UVTA UV unit as a standard feature.

Note: UV lamps have a life of 8760 hours (one year), at which time the ultraviolet energy has decreased by 30 percent. Replace lamps at this time. UVTA can supply replacement lamps.

Caution: Never operate this unit with covers removed without protective glasses and clothing. Rays emitted by UV lamps are harmful to eyes and exposed skin.

General pool chemistry: It is important to maintain properly balanced water with pH in the 7.0 ñ 8.5 (which is suitable when using hydrogen peroxide).

Warranty: UVTA systems are warranted to be free from defects in material or workmanship under normal use and service for 12 months from the date of purchase.



The UVTA advantage

Disinfection	Disinfects in seconds
Purification	Eliminates smell, taste and foam without adding dissolved solids.
Safety	Non-corrosive, non-toxic, non-irritating at the recommended residual level.
Low maintenance	The AFP tube is non-fouling and non-corroding.
Reliability	No mechanical features to wear out.
Efficiency	The lamp temperature is controlled to provide maximum lamp output.
Cost-effective	No smells to vent, no corrosion or scaling of facilities, longer water use means lower costs and lower heating costs.

Typical chlorination systems vs UVTA systems

Chlorine

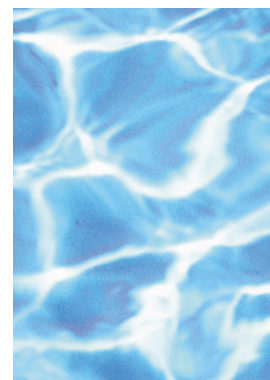
UVTA UV and hydrogen peroxide

20-45 minutes retention time	Speed	purifies in 3-5 seconds
highly corrosive, can be toxic, connected to carcinogens	Safety	non-corrosive, completely safe
large changes in pH and colour	Effects on water	small effect of pH and odour
Expensive to supply and safely operate	Cost	Inexpensive to supply and safely operate

Best obtainable bacterial results using UVTA UV system with H₂O₂

Type of organism

Total viable bacteria	Not more than 100 per millilitre on standard plate count
Faecal coliform	Nil per 100 millilitres
Coliform	Not more than 4 per 100 millilitres
Pseudomonas aeruginosa	Nil per 100 millilitres
Legionella pneumophila	Less than 10 CFU/mL (Colony forming units/mL)



“UVTA H₂O₂ PLUS”

If high option Hydrogen Peroxide usage occurs, the addition of “UVTA H₂O₂ PLUS” is recommended to assist in controlling the H₂O₂ level.