

KEY ADVANTAGES

Chlorine Disinfection

- Multiple technologies.
- Affective against viruses and bacteria.
- Log 6 removal easily achieved.
- Can be combined with other disinfection technologies to achieve effective treatment.
- Great end user residual disinfection.

Ozone Disinfection

- Low residual time.
- Log 6 removal for all species.
- Colour reduction.
- Minimal problematic by-product.
- Can disinfect airborne pathogens as well as water.

UV Disinfection

- Fast disinfection - takes only seconds to inactivate organisms.
- No chemical dependency.
- No problematic by-products
- Inactivates a broad spectrum of pathogens, including Giardia and Cryptosporidium.
- UV is an accepted, proven technology in thousands of installations around the world.
- Micro-organisms are “inactivated” and unable to reproduce or infect.
- Can promote advance photo oxidation in the presence of peroxide.
- Various lamps are available for different applications of air/water disinfection, including beverage industries.
- Medium pressure lamp ultra violet (UV) light systems significantly reduce chloramine concentrations.

FEATURES AND BENEFITS

- Abides by the highest Australian Standard.
- High quality drinking water as per Australian Standard (6 log removal).
- Proven, reliable performance for different applications.
- Small footprint.
- Robust operation.
- Flexible and custom design for your application.
- Durable stainless steel modules or pipework.
- Low maintenance.
- Easy to install.
- Value for money.
- Fully automated.

APPLICATIONS

The Disinfection process can be utilised within the following applications:

- Wastewater and water final treatment.
- Treatment of high strength wastewater.
- Reducing production costs and meeting EPA regulations.
- Air disinfection and surface sterilisation.
- Domestic industrial and municipal application.

DISINFECTION SYSTEMS

- ▶ EFFECTIVE AND ROBUST WATER / WASTEWATER DISINFECTION TECHNOLOGY
- ▶ HIGH PERFORMANCE AND VALUE FOR MONEY
- ▶ EFFECTIVE AND HIGH PARASITE, BACTERIA AND VIRUS REMOVAL

Key Installations



Beaudesert WTP UV System



Eastern Treatment Plant WTP Torrent System



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TACKLING WATER CONTAMINATION WITH DISINFECTION

Aquatec Maxcon is a leading provider of anaerobic technologies for a variety of applications, with over 45 years' experience in the field. From high rate UV-C disinfection treatment processes for industrial wastewater treatment applications to more conventional municipal Chlorination processes, Aquatec Maxcon has access to a wide variety of proprietary and in-house technologies. We conduct extensive research and development in our laboratory as well as field pilot trials to continually improve our technologies.

Aquatec Maxcon has built multiple tailor-made strategies which provide municipalities with reduced pathogens such as protozoa (Cryptosporidium, Giardia), bacteria (E. coli, Salmonella), and viruses (Hepatitis A, Hepatitis B, Poliovirus, Rotavirus).

We employ several key strategies, a multi barrier approach to reduce power, substrate and cost, an hydraulic solution for optimizing the treatment duration and advance system control to provide a real time response to any changes in the system. Aquatec Maxcon can also offer other routes for disinfection as filtration membrane separation, electro-coagulation and vacuum distillation.

AQUATEC MAXCON



Chinchilla Wastewater Treatment Plant



Ballina Wastewater Treatment Plant



Rochester Water Treatment Plant

COMMON UV DISINFECTION CONFIGURATIONS

Closed Vessel Wastewater UV Systems

As wastewater has a very low UV transmission, the lamps are placed in a tight format reducing the distance from the target organism, to deliver a powerful dose. The emphasis of the system design is mainly for the dose delivery.

Closed Vessel Drinking Water UV systems

Drinking water has a very clear transmission in which wavelengths can reach further. The emphasis of the system design is mainly for attending the headloss at a higher flow rate.

Open Channel WasteWater Products

This configuration is well suited to wastewater disinfection applications with a wide range of flow rates, including challenging effluent such as combined sewer overflows, primary and tertiary wastewater reclamation and reuse.

UV PHOX

UV oxidation solutions are enabling water suppliers to cost-effectively treat chemical and microbial contaminants that affect the purity of water in drinking water, wastewater reuse and groundwater remediation applications. The UV PHOX system provides a reliable delivery of UV energy to safeguard water against microorganisms and oxidise environmental contaminants.

CHLORINATION

Chlorination technologies include, but are not limited to:

- Traditional disinfection dosing chemicals; Chlorine and Hypochlorite. These are the most cost effective methods which are easy to control and provide treatment to a wide range of species.

- Chlorine dioxide. This agent disinfects regardless of the pH. It has a very good sustained-release effect and remains active in the pipes for many hours to days. Chlorine dioxide always has its full disinfectant effect because it does not react with ammonia or ammonium.
- Electrochlorination. These systems provide an on-demand supply of < 1.0% sodium hypochlorite solution, generated through the electrolysis of diluted brine solution. This system is well suited to small operations that require higher standards of health and safety.

OZONATION

Ozone, the triatomic form of oxygen, is generated by recombining oxygen atoms with oxygen molecules. This process takes place in the gap between the dielectric layer on the high voltage electrode and an earth electrode in the ozone generator. When high voltage is applied to this arrangement, a silent electrical discharge occurs in the gap which excites the oxygen molecules in the feed gas flowing through the gap, which causes them to split and combine with other oxygen molecules to form ozone.

The units major features are:

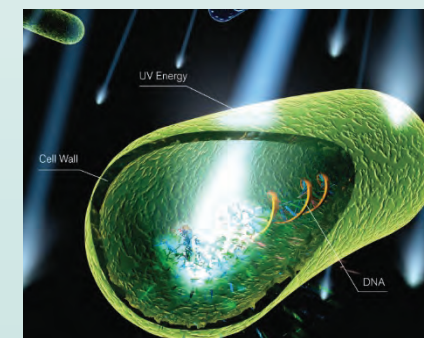
- High ozone outputs at low specific power
- Robust industrial quality for reliability and long service life
- High ozone concentration at full-load
- Very compact dimensions for easy integration
- Low maintenance and service personnel requirement
- Second generation technology

The Final stage is the destruction of the residual Ozone. Two destruct units are available; a catalytic ozone destruct unit and a thermal destruct unit. While the catalytic unit has a higher capital cost than a thermal destruct unit, it provides the plant owner with a lower ongoing operation cost.

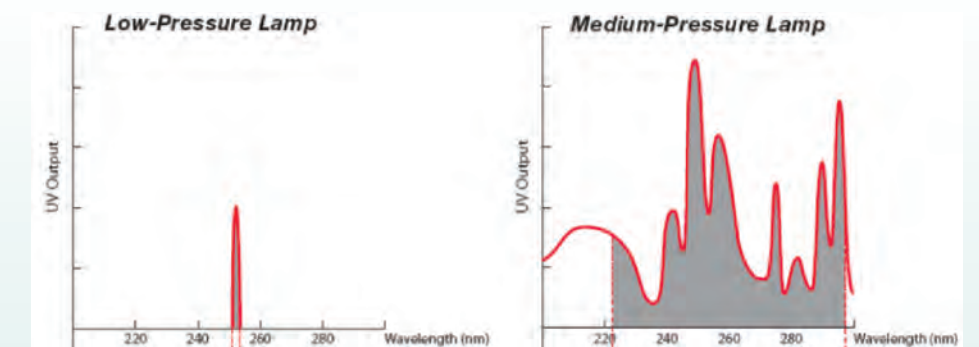
UV DISINFECTION



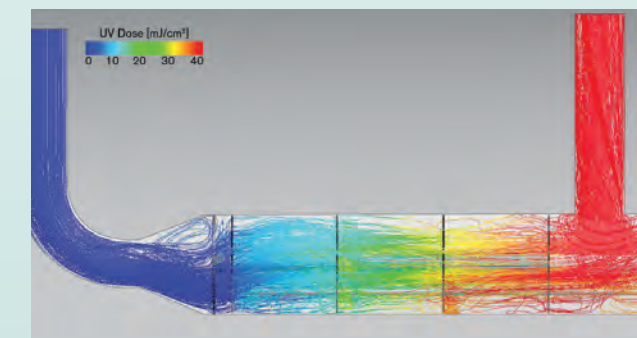
Three types of lamps emit; electromagnetic wave low pressure, high intensity low pressure and medium pressure.



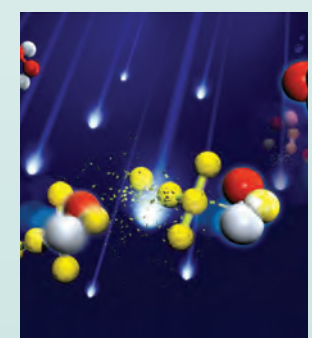
The electromagnetic wave enter the cell structure and alter the DNA inactivating the microorganism reproduction system.



The most effective wavelength in effecting the micro-organism is the range of 250-260nm. The low pressure utilises a mercury excitation wavelength at 254nm while the medium pressure emits a range of wavelength (also contains mercury).



Correct sizing and orientation are important to reach the needed dose for successful treatment



The addition of H2O2 will promote Advance Photo oxidation.