UV GUARD™

UV DISINFECTION SPECIALISTS

Microbial free water for medical applications and environments

Microbial free water is essential in all medical and hospital environments. Water is a major component in many diverse applications and waterborne pathogens are potentially spread through five main routes as listed right:

- Direct contact (bathing)
- Indirect contact (washing of surgical tools)
- Consumption (drinking water)
- Inhalation of droplets (air conditioning units)
- Blood contact (dialysis machines)

Due to debilitated immune systems of patients, and the unavoidable potential of water to human contact, it is vital that the water used in these highly sensitive areas is free from bacteria, viruses and other pathogens.

QUALITY SYSTEM CERTIFICATION ISO 9001 DNV·GL

SAFETY SYSTEM CERTIFICATION AS/NZS 4801 DNV·GL

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Hospital Applications

UV Disinfection – the basics

UV disinfection is a chemical free water treatment process that utilises Ultra-Violet light in the germicidal wavelength range between 200 and 300 nanometers. The optimum UV wavelength for UV disinfection is 254 nanometers or the C spectrum, otherwise known as UV-C. When microorganisms are exposed to UV-C, they are destroyed outright or rendered incapable of reproducing.

UV disinfection systems can be used solely or in combination with other water treatment methods such as sediment filtration, activated carbon filtration, water softening, ultrafiltration (UF), reverse osmosis (RO) and electro deionisation (EDI).

UV Disinfection – the advantages

- Proven performance - unlike chemicals, UV is effective against all known microorganisms including the Chlorine resistant Giardia and Cryptosporidium.
- Flexibility – can be retrofitted into existing water treatment processes or plumbing infrastructures easily.
- Remote monitoring – performance can be analysed in real time with the results potentially identifying problems with upstream water treatment processes or deterioration in water quality.
- Small OPEX - long term economic operation with minimal maintenance required.
- Chemical free - leaves no residues, odour or coatings on materials.

UV-Guard systems can contribute towards regulatory approval

AS/NZS 4187: Disinfection and sterilisation infection control guidelines

AS/NZS 4187 specifies the requirements and practices necessary for the effective and safe reprocessing, storage, handling and transportation of reusable medical devices in human health care. This includes tools such as sterilisers, washer disinfectors, Endoscope reprocessers and other devices.

The objective of this standard is to ensure that health service organisations correctly reprocess reusable medical devices so that they can safely be used without risk of transmission of infectious agents.

The standard states that "means shall be provided to disinfect incoming water" and that "the disinfection process shall ensure that there are fewer than 10cfu/100ml sample of final rise water and shall be free from legionellae, pseudomonas aeruginosa and mycobacteria." UV disinfection can ensure that this microbial target is met.


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AS/NZS 3666: Air-handling and water systems of buildings

AS/NZS 3666 outlines the requirements of design, installation, commissioning, operation, maintenance and performance of air-handling and water systems such as warm water systems or cooling towers.

Table 3.1 from AS/NZS 3666.3 shows potential responses to detection of Legionella in cooling water systems such as reviewing water treatment programs. Reviewing water treatment programs may highlight the need for additional water treatment such as the implementation of a UV disinfection system.

AS/NZS 4020: Testing for products for use in contact with drinking water

The AS/NZS 4020 is a requirement in the Plumbing Code of Australia for materials and products in contact with drinking water. It forms part of the WaterMark Level 1 certification and ensures that products in contact with drinking water are safe for use and fit for purpose. All UV disinfection systems being used in hospitals must be WaterMark certified.

Australian Drinking Water Guidelines (ADWG)

The ADWG sets out the minimum microbial and chemical concentrations in water to be consumed by humans (potable). Potable water supplies within hospitals must meet the parameters within the ADWG. The ADWG states than an undetectable level of E.coli in 100mL of potable water must be satisfied.

Additionally, UV light is highlighted as being effective against Cryptosporidium which may be present in captured rainwater intended for consumption. Cryptosporidium cannot be controlled by the use of Chlorine.

ANSI/AAMI/ISO 13959: Water for hemodialysis and related therapies and ANSI/AAMI/ISO 26722: Water treatment equipment for hemodialysis and related therapies

The AAMI 13959 and 26722 standards have largely been adopted in Australia and represent the minimum criteria of water pre-treatment for dialysis machines.

UV disinfection can be used pre and post RO or filtration to provide additional microbial protection to the water and water treatment process. It can also be used to reduce chlorine residual to regulatory approval levels of <0.1 mg/L.

Produce high quality water for stringent standards

UV-Guard are specialists in the supply of UV disinfection systems for:

- Hospital Central Sterile Services Departments (CSSD)
- Sterile Processing Departments (SPD)
- Renal units
- Pathology units
- Warm water and hot water systems
- Pharmaceutical laboratories
- Potable water provision
- Cooling water systems

UV-Guard can work with you to design a certified UV system specific to your needs and help ensure the water used in your process is regulatory compliant and fit for use.

If you are a water treatment system integrator, UV-Guard will collaborate with you to ensure the correct UV system is specified to meet your project requirements. Contact us today.

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