

ecas



Engineering for  
Health & Hygiene™

**Safe, ecological, water sanitisation  
and surface disinfection systems**



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Health & Hygiene™

**A safe and healthy water supply clear of pathogens is vital for human survival.**

**Water purification and disinfection are amongst the most important health needs today in both developing and technologically advanced nations.**



**FACT:** 1.2 billion of the human population have no access to clean drinking water.

**FACT:** There are more than 2.2 million people dying each year from diseases caused by contaminated water.

**FACT:** There are 10 times the amount of people dying because of polluted water, than war victims every year.

(WORLD HEALTH ORGANISATION)

## Legionella kills

In the US there are an estimated 10,000 to 50,000 cases of Legionnaires Disease each year according to OSHA (Occupational Safety & Health Administration).

Between 1995 and 2005 over 32,000 cases of Legionella, and more than 600 outbreaks were reported to EWGLI (The European Working Group for Legionella Infections).

Legionella related illness is under-diagnosed worldwide. Mortality is about 10-14% and 20-33% of infections are nosocomial. The most common problem:

## The Biofilm

Biofilm is a viscous, organic build up within water pipelines that protects micro-organisms and releases them into the fluid.

Biofilm is resistant to biocides, and physical defence systems, such as ultra-violet rays, do not reach these micro-organisms – Legionella in particular.

Most decontamination systems have limited efficacy or require high energy consumption or require chemical agents in quantities above those allowed by WHO regulations in order to be effective.

📌 **A total of 5,551 and 6,305 cases were reported by 29 European countries in 2009 and 2010, respectively. The age-standardised rate of all cases was 1.20 per 100,000 inhabitants in 2010, 12% higher than in 2009, which was consistent with the increasing trend observed since 2005.** ↴

(EUROPEAN LEGIONNAIRES' DISEASE SURVEILLANCE NETWORK)

# The solution: Ecas4-Anolyte

**Our patented technology produces a highly effective, genuinely pH neutral, electro-chemically active, metastable disinfectant without the use of toxic chemicals.**

Ecas4-Anolyte is a safe, ecological, water and surface disinfectant suitable for water reticulation systems and infection protection within a wide range of applications.

Ecas4-Anolyte eradicates biofilm from piping infrastructure without causing corrosion or altering the potable condition of the water, making it especially suitable for eliminating Legionella.



## Ecas4 nebulisation technology

**Ecas4-Anolyte is an aqueous solution with a high bactericide and fungicide effect.**

### Extremely effective infection prevention

- + Effective against MRSA
- + Safe and easy application
- + Disinfects all equipment surfaces including walls and ceilings
- + Safe to use on all electrical equipment
- + Non corrosive
- + Non toxic
- + Reduces bacterial loads compared to conventional disinfection.

### Typical Application: room disinfection

- + Disinfect with Ecas4 Nebulisation (Manually or Automatically with Nebulisation device)
- + Time approx. 15 minutes per room.

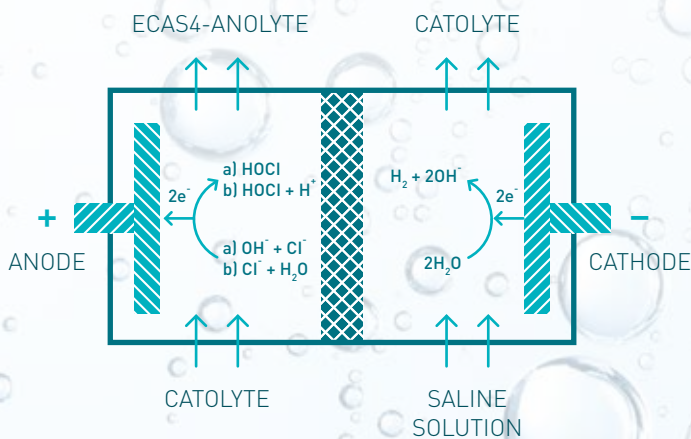




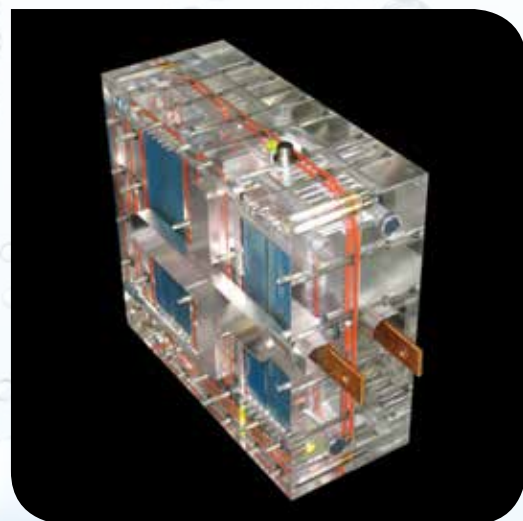
# The Ecas4 technological advantage

- + Worldwide Patented Four Chamber Cell System  
The Ecas4 apparatus is based on the Membrane Electrolytic Reactor system with four chambers (Patents - PCT/IT 2006 000 829 and PCT/EP 2009 065 077). The reactor features allow the typical synthesis of a neutral Anolyte (with a pH close to 7) characterized by an ORP (Oxidation Reduction Potential) of about 850-900 mV, a chloride content less than 0.5% and an active chlorine content of about 350 mg/L.
- + Ecas4-Anolyte is pH neutral and is therefore non-corrosive.
- + Using Ecas4 avoids the need to prepare and store dangerous chemicals.
- + Both 'barrier' & 'deposit' effect.
- + Disinfects against: e-coli, coliforms, pseudomonas, enterococcus, staphylococcus, clostridium, legionella, biofilm.
- + Removes existing biofilm from hot water mains pipes within 13 days.
- + Approved bactericidal activity according to EN1276 and EN3697 of minimum log 5.

- + Environmentally friendly and non-toxic.
- + Improvement of COD, BOD and AOX values in wastewater derived by disinfection with Ecas4-Anolyte.
- + Fully complies with European legislation, including DVGW requirement (DVGW - German Technical and Scientific Association for Gas and Water).
- + Costs savings as thermal-shock treatment of pipes is not required.
- + Labour savings in industrial surface and machinery disinfection.
- + No chemical purchases are required.
- + No special safety equipment or protocols required as Ecas4 is non-toxic.
- + Customised design – water treatment systems can be individually designed according to client requirements.
- + Remote control capability – once installed within new or existing hot water systems, the Ecas4 water treatment system can be remotely controlled.
- + Water treated remains potable.



Ecas4-Anolyte production is entirely automatised by means of an electrolytic procedure. The Ecas4 apparatus is based on the Membrane Electrolytic Reactor system with four chambers.



# Ecas4-Anolyte and water purification

**A highly efficient, non-toxic disinfection solution that eliminates both pathogens and biofilm.**

Ecas4-Anolyte production is entirely automatised by means of an electrolytic procedure that does not require the use of toxic, harmful or dangerous substances.

The Ecas4-Anolyte solution has a minimum content of chlorine and a high redox power and is genuinely pH neutral and non-corroding due to our unique patented 4-chamber system.

## Ecas4-Anolyte solution is:

- + pH neutral
- + 100% effective for 48 hours
- + non-toxic
- + 100% biodegradable
- + more effective than ozone or chlorination systems and
- + reaches industry disinfection standards.



The Ecas4-Anolyte disinfection system measures and injects a minimal dose of Ecas4-Anolyte disinfecting agent into the water pipes. Suitable for hot, warm and cold water.

Common disinfection methods do not offer long-lasting protection because they are not capable of eliminating the habitat of both Legionella bacteria and other dangerous pathogenic agents, namely the biofilm. This is an ever present risk in piping systems.

## How Ecas4-Anolyte compares to other purification and disinfection systems

SYSTEM	Barrier Effect	Deposit Effect	Disinfection with No Corrosion	No Halomethane Formation	Biofilm Elimination	Cost Benefits
Thermal Treatment	●	●	●	●	●	●
Chlorination	●	●	●	●	●	●
Chloride Dioxide	●	●	●	●	●●	●●
Copper + Silver Positive Ions	●	●	Not compatible with zinc surfaces	●	●	●
Ozone	●	●	●	●	●	●
Filtering	●	●	●	●	●	●
Ultraviolet Rays	●	●	●	●	●	●
<b>Ecas4-Anolyte</b>	●	●	●	●	●	●

● HIGH ● MEDIUM ● LOW

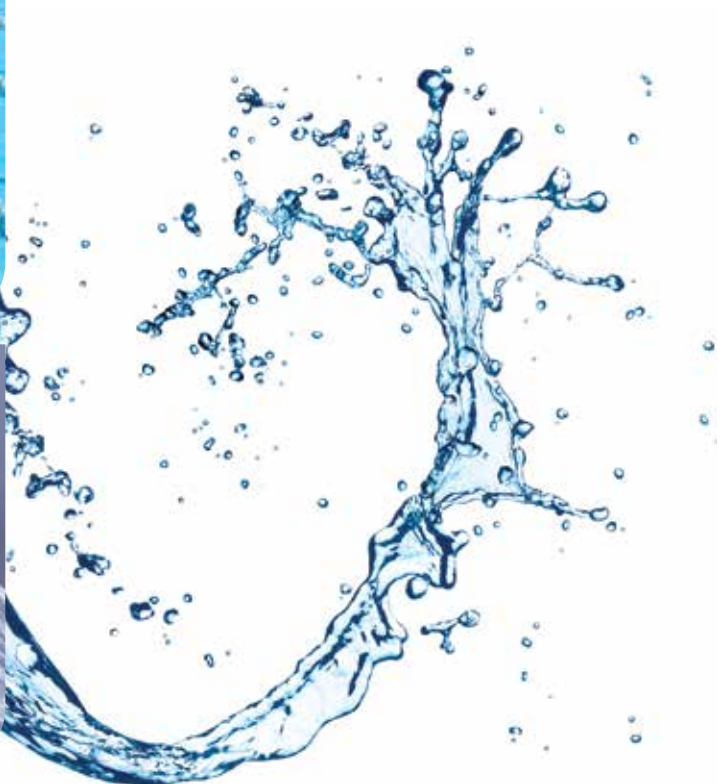
# Ecas4 applications



## Water purification and surface disinfection.

A safe and healthy water supply without pathogens is vital for human survival. Ecas4 technology has a wide range of applications for both domestic and industrial water treatment and surface disinfection:

- + Hospitals:
  - hot water treatment
  - operating theatre disinfection
  - beds
  - wards
  - wet areas
  - rest rooms
- + Dental clinics
- + Cooling towers
- + Saunas, spas, pools
- + Able to treat cold, warm or hot water systems.





# Ecas4 in action

**The Ecas4 systems fully comply with European legislation, including DVGW requirements and are currently installed and in use at a number of facilities in Europe.**

## Hospitals

- + Medical Park – Bad Wiessee, Germany
- + Rosenheim Clinic – Germany
- + Dresden University Hospital – Dresden, Germany
- + National Neurological Institute C.Besta – Milano, Italy
- + Private Hospital Villa Igea di Ancona – Ancona, Italy
- + S.Andrea – Vercelli, Italy
- + Hospital Asti, Italy
- + Hospital Maria Vittoria – Torino, Italy
- + Hospital San Camillo Forlanini – Roma, Italy
- + Camilliani – Napoli, Italy
- + Hospital Universitario Donostia – San Sebastian, Spain
- + Hospital Basuto – Bilbao, Spain.



**Ecas4 replaces the heat treatment method of reducing Legionella in hot water systems in hospitals and public buildings so therefore significantly reduces energy costs.**





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## Safe, ecological, water sanitisation and surface disinfection systems

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