

Technical data for BacTerminator® Safe

ECA water production	50 g (free chlorine)/day, enough to treat 80-100 m³ water a day with a free chlorine concentration of 0.5 ppm
NaCl (salt) consumption	3 g per 1 g (free chlorine)
Power consumption	20 W*h per 1 g (free chlorine)
Control	PLC
Alarm and monitoring	Filling up with NaCl (salt) Water inlet Change the pre-filter ECA concentration in water low (if ORP sensor connected) ECA concentration in water high (if ORP sensor connected) Log Outlet – alarm warning – relay Inlet – pulse from water meter, ORP sensor
Safety	Shutdown on alarm
Size	BacTerminator® Safe Cabinet (painted steel) wall-mounted H x L x W in mm, 1,000 x 600 x 250
Power connection	110/120 V / 50-60 Hz or 230/240 V / 50-60 Hz ca. 50 VA
Extra equipment	ORP sensor to monitor concentration of ECA in water system External high capacity brine tank High capacity pre-filter/water softener

Cooling water installation with BacTerminator®

	Water quality before installation of BacTerminator®	Water quality after installation of BacTerminator®	Log reduktion	% reduktion
Legionella/L	300	<1	Log 2.5	99.5%
Total Viable Count CFU/ml at 22°C	3,000	12	Log 2.4	99.4%
Total Viable Count CFU/ml at 37°C	3,000	10	Log 2.5	99.5%

Hot bath water in changing room – indoor swimming pool

Legionella/L	400	<1	Log 2.6	99.6%
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Water analyses by Eurofins.

BacTerminator® Safe – a safe and **simple system** to control **Legionella** in hot water systems

– **without** adding any **chemicals**

BacTerminator® Safe is an on-site system which, using drinking water, electricity and NaCl (table salt) produces an extremely effective disinfectant, also known as ECA (Electrochemically Activated Water).

ECA water is known as a highly effective disinfectant against Legionella and biofilm. The system's operating costs are very low, and minimal monitoring is required for optimal functioning.

The advanced electrolytic cell was developed and made in Denmark by Adept Water Technologies.

It is one of the most efficient electrolytic cells on the market, meaning that electricity and NaCl consumption is very low. Production of a concentration 0.5 ppm ECA water in 1,000 litres of water consumes 10 W*h and 1.5 g NaCl. This means that even big units such as schools, nursing homes, hospitals and housing associations can be secured for a few cents a day.

Applications:

- Hot water systems in schools, hospitals, office buildings, residences, public buildings
- Drinking water systems
- Process water
- Cooling water
- Water to be stored



Fig. 1: BacTerminator® Safe

Simple, robust, compact and smart

The BacTerminator® is designed to require minimal service. The system is typically inspected once a week to check that the salt level and the pre-filter are in order. Topping up the NaCl (salt) and replacing the pre-filter take less than 10 minutes without having to shut down the system.

The system has an inbuilt control and monitoring system. This means that you will be alerted if the pre-filter needs replacement, or additional NaCl (salt) is required. The system also has a log function, so you can check the operating parameters' history.

BacTerminator® Safe is simple to install and your own plumber can do it if he is trained by Adept Water Technologies. He can also perform your annual service and provide the consumables you need during the year.

BacTerminator® Safe is supplied complete for installation, including a complete The BacTerminator® Safesystem containing controls, The BacTerminator® technology, the required pre-filter, salt tank, dosing pump and inlet for pulse from the water meter. The system can be supplied with a sensor for online monitoring of your water system.

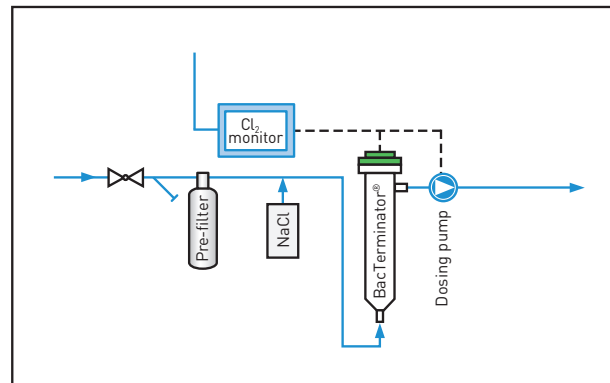


Fig. 2: Process

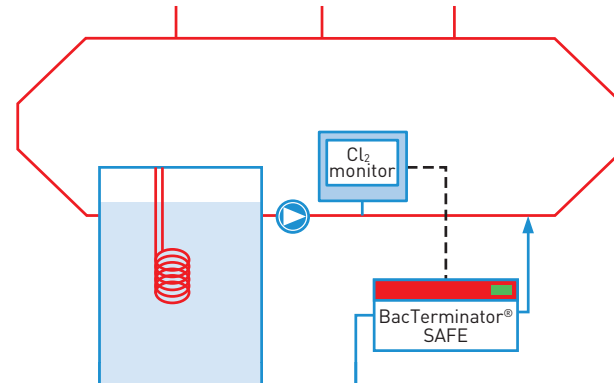


Fig. 3: Installation

Advantages of the BacTerminator® Safe

- Environmentally friendly in operation
- Disinfects with extremely high efficiency
- Low operating costs
- Requires no storage and handling of chemicals
- No increased risk of corrosion thanks to an extremely low chloride content
- Needs only minimal ongoing maintenance
- Easy to install
- Has inbuilt monitoring for high security

Facts: the latest research has shown that ECA water is better at disinfecting than both hypochlorite (OCl^-) and chlorine dioxide (ClO_2)

Sources: »Comparative Antimicrobial Activities of Aerosolized Sodium Hypochlorite, Chlorine Dioxide, and Electrochemically Activated Solutions Evaluated Using a Novel Standardized Assay«. By R.M.S. Thorn, G.M. Robinson and D.M. Reynolds: Antimicrobe Agents Chemotherapy 2013, 57(5):2216. DOI: 10.1128/AAC.02589-12. Published Ahead of Print 4 March 2013.

»Electrochemically activated solutions: evidence for antimicrobial efficacy and applications in healthcare environments«. By R.M.S. Thorn, S.W. H. Lee, G. M. Robinson, J. Greenman & D. M. Reynolds. Received: 13 April 2011 / Accepted: 15 July 2011 / Published online: 2 August 2011 # Springer-Verlag 2011.

Facts: ECA water

When water containing chloride (Cl^-) runs through the electrolytic cell, free chlorine in the form of Cl_2 is formed in the water.

This reacts very quickly with the water and forms an equilibrium of hypochlorous acid (HClO) and hypochlorite (OCl^-). These two substances are also called free chlorine. Free chlorine is considered to

be one of the most effective disinfectants and it is by far the most commonly used disinfectant globally for drinking water.

The hot water system will typically be given a dose of around 0.3 ppm, which corresponds to the levels used in Sweden and Germany and elsewhere to treat drinking water.

Example:

»One school with 1,000 pupils uses an average of 4,000 litres of hot water a day. Legionella control with BacTerminator® Safe and 0.3 ppm ECA water will use 100 W·h and 10 g NaCl - a cost of less than € 0.1 a day«.