

MINIMIZE THE RISK IN YOUR DENTAL UNIT WATER LINE

Avoid **contaminated water** and prevent growth of biofilm



BacTerminator® Dental

– The chemical-free solution to keep the water in your Dental Unit safe

TAKE NO CHANCES

Secure **your patients** and yourself against unsafe water



Most of the water used in dental units is potable water that must normally meet national or international quality standards. The big challenge is that this standard typically says something about the water that leaves the waterworks, but not the water that reaches the consumer or the dental unit. The water is typically distributed via kilometres of underground pipes, following which it must be distributed via the property's local pipe system, then ducted through the dental unit and only used here in the treatment and to rinse the mouth.

This entire process permits the possibility of inappropriate pollution, typically of a microbial nature.

Most waterworks are able to supply very high quality water, but no production is 100% safe. Water that is potentially unsafe

with respect to microbial contamination, can be supplied by waterworks with excessive levels of bacteria such as *Legionella* and *Pseudomonas* or with protozoa such as *Giardia* or *Cryptosporidium*.

Pollution can subsequently occur in the waterworks' distribution system – no such systems are totally sealed. The problem can occur in the pipe systems, the reservoir and the water towers. Pollution of external origin is a constant risk with these systems.

The distribution system in the property or the dental unit is also a risk factor. The water consumption is often small, and there are long periods of stagnation. The water temperature typically rises in periods of stagnation, creating a fertile environment for the growth of biofilm, and not least a risk of a *Legionella* bloom.



Waterborne pathogens

- **Legionella** – Infection with Legionella in humans results in high fever, lethargy, chest pains and yellowish sputum with coughing after an incubation period of 2-10 days.
- **Pseudomonas** – Infection with Pseudomonas in humans can result in various problems including urinary tract and lung infections.
- **Giardia** – Infection with Giardia in humans typically results in sudden diarrhoea after an incubation period of 1-4 weeks.
- **Cryptosporidium** – Infection with Cryptosporidium in humans typically shows symptoms such as watery diarrhoea, stomach cramps, reduced appetite, lethargy, nausea and vomiting as well as possible headaches, coughing and light fever.

FACTS YOU MAY NOT BE AWARE OF

Is polluted water in your dental unit a genuine risk? – Unfortunately yes

Various national organisations relevant to the dental sector in Scandinavia, Germany, France, Spain, Holland, Italy, the UK, the US and many other countries indicate this as a challenge that must be borne in mind.

Numerous studies in Denmark and elsewhere have shown that even in a country

with very high potable water quality, it is possible to measure very high values for microbial pollution in the dental unit. This indicates that there is a health risk for both patients and staff if the dental unit is not regularly or constantly disinfected.

IS THERE ANYTHING ELSE WE NEED TO BE AWARE OF?

As noted above, the water supplied by the local waterworks is often high quality. But this doesn't necessarily mean that it's ideal for the dental unit. The water in many places in the world has a relatively high level of calcium carbonate – hard water. Hard water is not a health risk in any way, but some of the calcium carbonate will precip-

itate and settle in the ducts and pipes as lime scale. Scaling can cause problems for the sensitive instruments in the dental unit, and it is unfortunately also a fertile substrate for the growth of biofilm.



THE EASY AND CHEMICAL-FREE SOLUTION

Safe water with BacTerminator® Dental

BacTerminator® Dental is a complete water treatment system designed especially for use in dental units.

- Provides disinfection, removes calcium carbonate and filters incoming water
- Protection against growth of biofilm in the unit
- No use of chemicals
- Eliminates the risk of loss of treatment capacity and profit because of breakdown caused by dirty water or bacteria
- Less service required – with removal of biofilm, particles and lime, valves and instruments last longer
- Eliminates problems in contaminated public water
- Minimises the risk of airborne and other infections for patients, dentists and their assistants because of infected water
- Focus on the working environment – low noise level
- Plug and play installation



Designed to **improve security** and keep your **water line safe**

The heart of the Bacterminator Dental is the unique patented BacTerminator® technology, which forces the water through a highly effective disinfection chamber using electrolysis technology. In the disinfection chamber some of the already present natural salts are converted into free chlorine as hypochlorous acid which disinfects

50-100 times more effectively than normal chlorine. This means it is possible with very low concentrations of free chlorine to have an extremely high disinfection rate.

The BacTerminator® Dental technology is also used in the food industry and for drinking water treatment.

Free chlorine is considered the main disinfection method for drinking water by the WHO, the EPA (US) and in several European countries.

BacTerminator® Dental is equipped with state of the art water treatment technology. This ensures disinfection at a level not previously seen in this type of equipment.



7. The result of processing with BacTerminator Dental is clean and disinfected water.

Water treatment and disinfection process step by step:



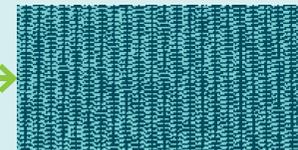
1. 100 micron filter to remove dirt and particles.



2. Active carbon filter removes old chloride residues and colour.



3. Ion exchange resin removes calcium carbonate from the water.



4. 1 micron filter to remove very fine particles.



5. From natural salts in the water, the BacTerminator® produces disinfecting agents which kill microorganisms and protect against subsequent growth of biofilm in the unit.



6. Bio Reaction Zone ensures that invading microorganisms are stopped and destroyed by disinfecting agents formed in the BacTerminator® disinfection chamber.

External dental practice test of the BacTerminator Dental

Dental practice 1	
Incoming drinking water	Outgoing water from unit with BacTerminator® Dental
Legionella 500 cfu/ml	Legionella <1

Dental practice 2	
Incoming drinking water	Outgoing water from unit with BacTerminator® Dental
Legionella 6,800 cfu/ml	Legionella <1

Internal test with BacTerminator® Dental	
Incoming drinking water	Outgoing Water with BacTerminator® Dental
Escherichia coli 50,000 cfu/ml	Escherichia coli <1
Bacillus subtilis (spores) 7,000 cfu/ml	Bacillus subtilis (spores) <1

YOU GAIN A MINIMUM OF MONITORING AND MAINTENANCE

Easy to handle on a daily basis



It is not necessary to monitor BacTerminator® Dental in daily use. It will automatically continue to supply the unit with clean safe water.

The system is equipped with an optional booster function which makes it possible after a period of non-use, e.g. weekends or holidays, to increase the BacTerminator® Dental's disinfection capacity and ensure an extra disinfection in the unit.

The unit includes a filter cartridge dimensioned for 3-6 months of consumption. The consumption depends on the water consumption in the unit and the quality of

the incoming water. The filter cartridge is replaced without use of tools and it is not necessary to switch off the water supply to the system. This procedure takes a few minutes and it can be performed by all employees in the dental practice.

BacTerminator® Dental will automatically emit a sound when it is time to replace the filter cartridge.

A simple user interface will always indicate the operating status. Service intervals and alarms will also be given acoustically.

Just Plug & Play

No difficult manoeuvres or heavy lifting



BacTerminator® Dental was designed with a pure plug and play concept. The system is installed by an authorised service engineer. The system is placed between the incoming water supply and the dental unit and connected to the power. The unit is then ready for use.

As the system is equipped with a pump for stable water supply to the unit, the system can be placed some distance from the unit or in its immediate vicinity as desired. BacTerminator® Dental was developed in a compact design with a very low noise level and it is thus suitable for installation in direct connection with the dental unit.

The BacTerminator® Dental can also be used as a filling station for water for dental units with installed water tank for separate filling

Specifications:

Flow out:

Capacity: 1-2 l/minute

Flow: 2.4 l/minute

Pressure: 2.4 bar (adjustable)

Connection: 8 mm / $\frac{5}{16}$ " push in fitting

Capacity filter cartridge:

1,000 l, 10° dH or every 6 months

Alarm for: low pressure in, filter change, service, leakage

H:452 mm, W:166 mm, L:430 mm

Requirements for feed water:

All versions:

Fresh water of drinking water quality

Filtered to: <1mm

Conductivity: >70µS/cm

Chloride level: >7mg/l

Temperature: 5-40°C

General: Pressurised feed water (1-6 bar)

Ambient temperature: 5-40°C

Electrical specifications

110V/230VAC PE 200W

Standby use <10W

Specifications are subject to change without notice.

ADEPT WATER TECHNOLOGIES IS A CLEAN-TECH COMPANY

We focus on **water disinfection** and deliver the **easy way** to clean water

Adept Water Technologies is a clean-tech company focusing on water disinfection. Adept markets the BacTerminator® and BacTerminator® Dental, based on Adept's proprietary technology. BacTerminator® Dental is patented in CE pat. no. 03788922.7 and US pat. no. 10/529.042.

Adept's disinfection system can be used in a broad range of applications in general industry, food-processing, cooling water, drinking water, waste water, health care and for disinfection in dental units.

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