

### THE PRODUCT

The microbial contamination of water circuits on dental units, which can occur either by way of entry, colonisation and multiplication of microorganisms from the water supply, with the formation of dangerous bacterial *biofilms*, or by way of retrograde penetration of microorganisms from the patient's oral cavity, is a well known problem. Such viruses and bacteria can, in addition to contaminating the liquid, find in biofilm a habitat suitable for colonisation and/or multiplication.

To ensure dental treatment of outstanding clinical quality and to prevent the risk of cross-infection, the assurance and maintenance of suitable hygiene levels in both the water delivered by the instruments and the water circuit inside the dental unit is of primary importance.

Peroxy Ag+ has been specifically designed for this purpose and can be applied in two different ways: applied pure (100%) in intensive circuit disinfection systems, when the unit is not in use on patients; applied diluted (2% in water – equal to 600 ppm H<sub>2</sub>O<sub>2</sub>) in the instrument spray feed using automatic dosing systems that add the disinfectant to the water supplied to the dental unit or via manual addition of the product to the independent feed tank liquid.

Peroxy Ag+ is a Medical Device Accessory, carrying the CE mark (EC Directive 93/42).

### COMPONENTS

Hydrogen Peroxide 3%, Silver (as Ag+ ions) 0.001%, stabilizers and water.

### ACTIVITY

#### PURE PRODUCT (100%) FOR DISINFECTION CYCLES

The disinfectant action of 3% Hydrogen Peroxide is widely documented and has been known for decades, as has its application in the disinfection of dental unit water circuits. The presence of Silver ions increases the biocide capacity of the peroxide and gives the solution a residual disinfectant action. It has been demonstrated that the product exerts an effective anti-microbial action with 10 minutes of contact:

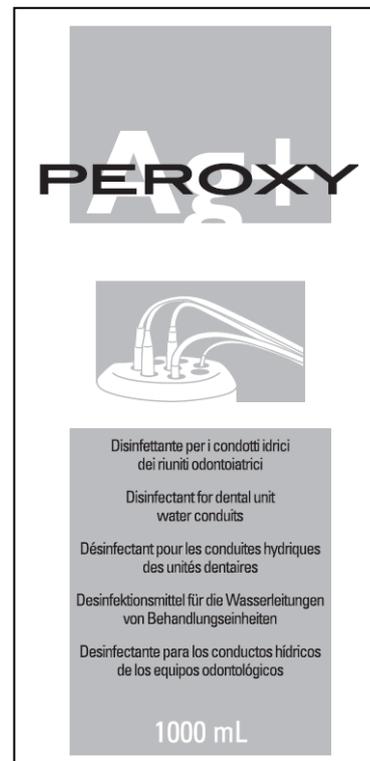
- **Mycobactericide activity** <sup>(2)</sup> on *Mycobacterium marinum* ATCC 25177 reduction 99.999% (6 Log);
- **Fungicide activity** <sup>(3)</sup> on *Candida* spp (pool of 5 oral clinical isolates) reduction 99.9999% (6 Log);
- **Bactericide activity** <sup>(3)</sup> against a bacterial pool 10<sup>7</sup> CFU/ml, consisting of *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli*, (ATCC 7075), *Klebsiella pneumoniae* (LIC2), *Salmonella enterica* (sierotipo typhi) (LIC3), *Bacillus atrophaeus*, *Enterococcus faecalis* (GO2) and *Staphylococcus aureus* (ATCC 6538), with each strain in concentrations greater than 10<sup>6</sup> CFU/ml: reduction 99.9999% (> 6 Log);
- **Biocide activity on biofilm** <sup>(4)</sup>:  
after 10 minutes of treatment on already-formed biofilm, reduction of at least 99% of living microorganisms in the biofilm (*Pseudomonas aeruginosa* *Staphylococcus aureus* and *Streptococcus faecalis*);
- **Moderate Sporicidal activity** <sup>(1,2)</sup> on *Bacillus subtilis*: reduction > 99.9% (> 3 Log);
- **High level process** <sup>(6)</sup>

The use of PeroxyAg+ in the intensive disinfection system for dental unit water circuits with cycles of 10 minutes of contact has showed high bactericidal activity, also against *Legionella*, yeasticidal activity, mycobactericidal activity and a notable sporicidal activity, that ensure the high reliability of the process.

#### DILUTED PRODUCT (600 ppm) FOR CONTINUOUS FEED

The effect of continuously adding the product, diluted at 600 ppm as H<sub>2</sub>O<sub>2</sub> (0.06%), to the water supply was assessed according to its capacity to inhibit the microbial growth (bacteriostatic action), to reduce the microbial load (bactericidal activity) of numerous microorganisms, as well as to prevent *Legionella* contamination.

- **Protection from *Legionella*** <sup>(7)</sup>  
Continuously added at 600 ppm (as H<sub>2</sub>O<sub>2</sub>) to the water supply, PeroxyAg+ reduces the load of *Legionella pneumophila* by more than 6 times, bringing back within legal limits even a water having a bacterial load up to six times beyond limits.  
After a period of one hour in the circuit and without any other intervention: reduction of *Legionella* > 99.99 %.
- **Bacteriostatic action (600 ppm H<sub>2</sub>O<sub>2</sub>)** <sup>(5)</sup>  
against *Prevotella intermedia*, *Porphyromonas gingivalis*, *Veillonella parvula* (parodontal pathogenic bacteria), and against pathogenic bacteria or opportunistic pathogens such as *Escherichia coli*,



*Pseudomonas aeruginosa, Pseudomonas stetzieri, Streptococcus faecalis; Staphylococcus aureus, Mycobacterium marinum, Candida Krusei, Candida tropicalis, Candida albicans, Peroxy Ag+ diluted at 600 ppm shows effective inhibition of bacterial growth;*

- **Synergic Bactericide action (600 ppm H<sub>2</sub>O<sub>2</sub>)** <sup>(3)</sup>  
tested on *Staphylococcus aureus, Pseudomonas aeruginosa* Peroxy Ag+ diluted at 600 ppm gives a reduction of 99.999% (5 Log) in 30 minutes;
- **Biofilm prevention (3)**  
on *Pseudomonas aeruginosa* as a clinical isolate and on *E. faecalis*, prolonged contact with Peroxy Ag+ at 600 ppm (as H<sub>2</sub>O<sub>2</sub>) reduces biofilm formation by over 60%.

(1) Savino A et Al: Decontaminazione batterica dei riuniti odontoiatrici. *Il Dentista Moderno*, Sept. 2003  
(2) Università di Ferrara – Analysis certifications  
(3) Del Nero S et Al: Attività antibatterica di formulati a base di perossido di Idrogeno e Sali di Argento. *Dental Cadmos*, 2012; 80(2); 96-107  
(4) Orrù G et Al: Evaluation of Antimicrobial-Antibiofilm Activity of a Hydrogen Peroxide Decontaminating System Used in Dental Unit Water Lines. *The Open Dentistry Journal*, 2010, 4, 140-146

(5) Orrù G et Al: Valutazione dell'attività antimicrobica di un sistema decontaminante a base di perossido d'idrogeno. *Risultati in vitro e su riunito odontoiatrico. Il Dentista Moderno*, December 2006  
(6) Università Sapienza Roma – Dip di Sanità Pubblica e Malattie infettive. Certification 16/12/2014  
(7) Università di Torino . Dip Scienze della Sanità Pubblica e Pediatriche. Certification 11/12/20

## **USE**

THIS PRODUCT IS FOR PROFESSIONAL USE – Use it according to the label indications

- Intensive disinfection of circuits:

Following the instructions in the dental unit's manual, where applicable: introduce pure product into the disinfectant tank for circuit disinfection cycles and activate disinfection cycles as described in the Manual.

- Continuous addition to water supply:

Automatic: following the instructions in the dental unit's user manual, introduce the pure product into the special tank disinfectant tank for continuous addition.

Manual: introduce 20 ml of product into the independent feed tank for every litre of water.

## **WARNINGS AND PRECAUTIONS FOR USE**

The product is not classified as dangerous.

P262 - Do not get in eyes, on skin, or on clothing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

As part of proper health and safety practices: wear suitable work clothes, gloves and eye goggles. Do not eat, drink or smoke when using the product.

## **STORAGE**

Keep out of children's reach. . Store the product in its original container; ensure it is closed securely and store at a temperature between 5 and 40 °C, away from flames, ignition and heat sources. In the event of a leaking or damaged container gather up the product with absorbent material and rinse with water.

## **DISPOSAL**

Dispose of the liquid as dangerous waste. Do not dispose of waste in sewage drains. Do not contaminate soil, surface waters or underground waters with the product. The container is made of polyethylene: after rinsing to remove any residue it can be sent for differentiated waste plastic collection, recycling, incineration or disposal at an approved facility

## **NOTES**

For further information please refer to the SAFETY INFORMATION SHEET.

The information on this sheet is provided in good faith and according to the best of our knowledge, and does not exempt the user from storing, handling and using it as indicated above and according to proper working practices and hygiene standards.

The product provider cannot be held liable for any consequences deriving from its improper use.

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