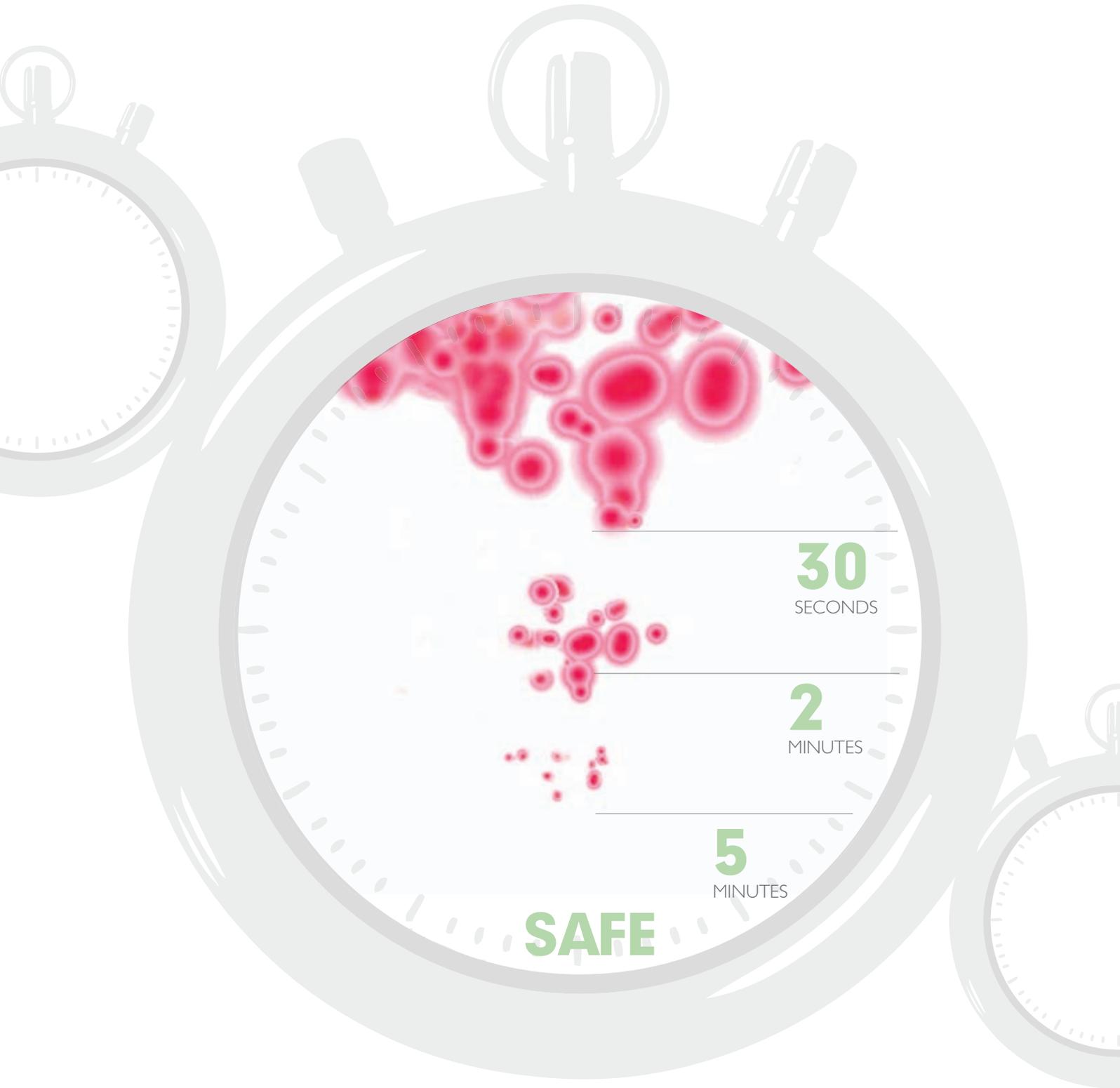


TRIOSAFE



30
SECONDS

2
MINUTES

5
MINUTES

SAFE

WHAT IS TRIOSAFE?

TrioSafe is a revolutionary sporicidal, antibacterial, bactericidal, fungicidal and viricidal sterilant. It is non-toxic and alcohol free. TrioSafe contains HOCl (Hypochlorous Acid), the active ingredient produced by the body's immune system for protection against infection.

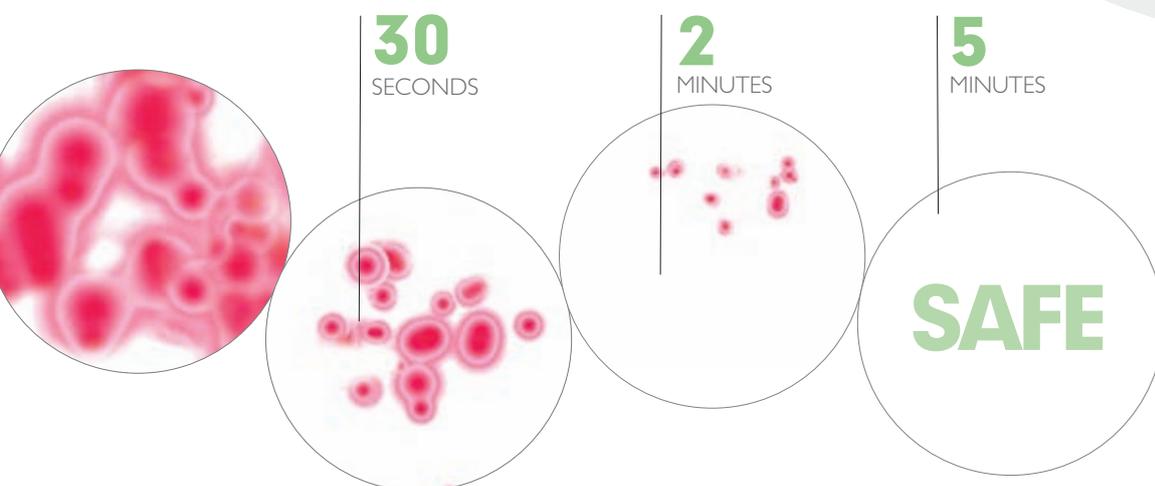
Due to its incredible killing power, HOCl has been used in surgical units for over 20 years. Until now it has only been available using an expensive and unreliable on-site production process. Partners for Endoscopy have spent 6 years developing a low cost reliable on site generator.

HOCl is also widely used within the food services, agricultural, veterinary, dental, water and facilities management sectors where the highest, uncompromised, health and hygiene standards must be observed at all times.

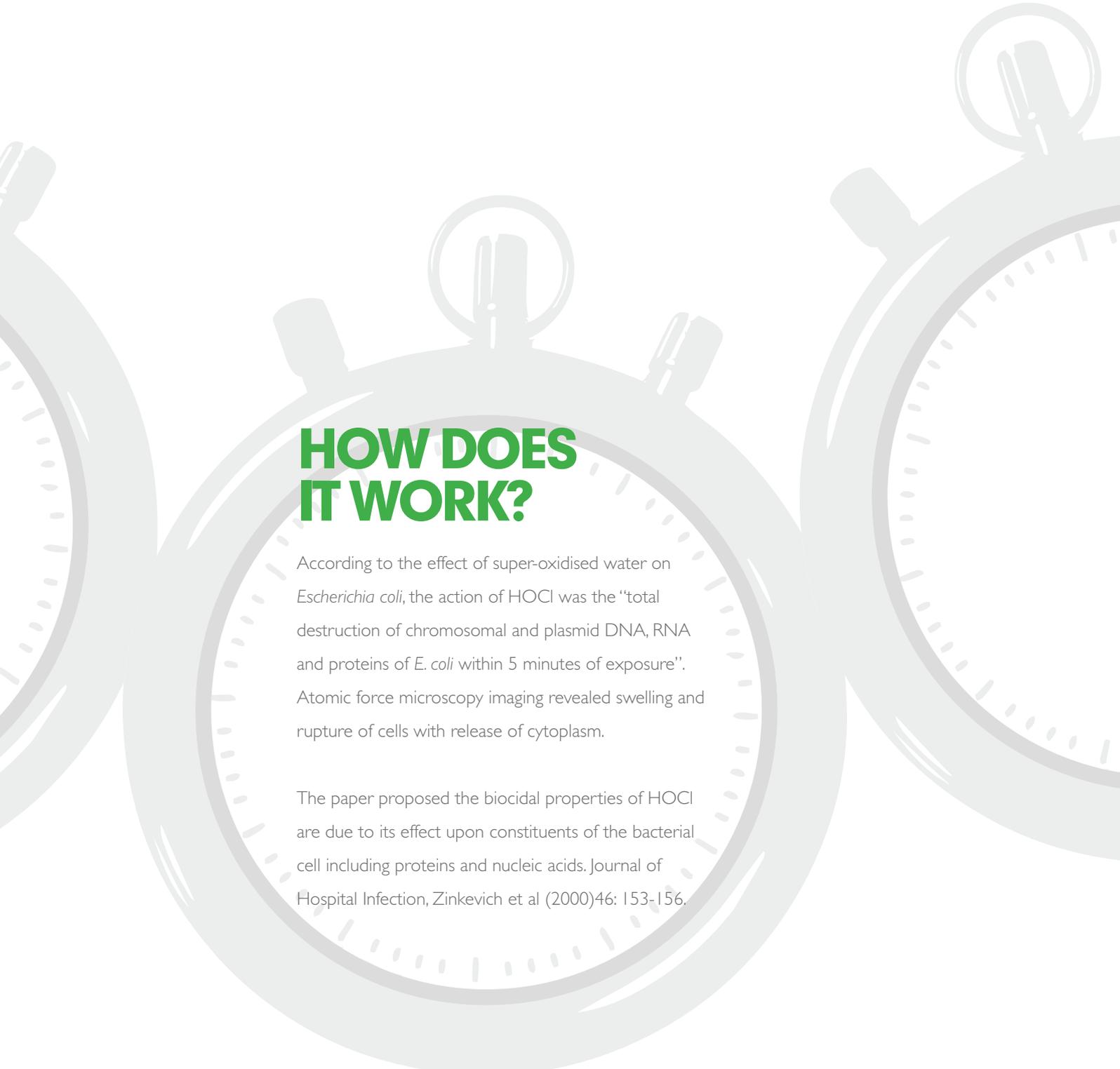
WHAT MICRO-ORGANISMS DOES IT KILL?

HOCl is a sterilising agent. It is a highly active antibacterial, antiviral and antifungal agent achieving a $>10^7$ log reduction within 2 minutes exposure in the absence of organic material and within 5 minutes in the presence of 10% serum solutions. (Journal of Hospital Infection Babb et al 1999).

Unlike any other steriliser, TrioSafe is non-toxic with no exposure limits and no disposal hazards. TrioSafe contains no salt therefore does not have the same corrosive actions as other types of HOCl generated electrolytically.



The images above represent how TrioSafe (Hypochlorous Acid or Super Oxidised water) acts on micro-organisms. After 30 seconds, the micro-organism starts to exude through its own cell membrane in an effort to protect itself. This process, known as lysis continues (2 minutes) until the whole membrane is fragmented and the micro-organism is destroyed. The timing is the same for even well protected micro-organisms like spores – giving a fast kill time. This action and chemical formulation is what is used by our own white blood cells to combat infection. That is how TrioSafe can be so aggressive to “bugs” and yet safe for us.



HOW DOES IT WORK?

According to the effect of super-oxidised water on *Escherichia coli*, the action of HOCl was the "total destruction of chromosomal and plasmid DNA, RNA and proteins of *E. coli* within 5 minutes of exposure". Atomic force microscopy imaging revealed swelling and rupture of cells with release of cytoplasm.

The paper proposed the biocidal properties of HOCl are due to its effect upon constituents of the bacterial cell including proteins and nucleic acids. Journal of Hospital Infection, Zinkevich et al (2000)46: 153-156.

USER SAFE

In recent years most endoscope disinfectants claim to be safe for users. Yet how many are safe for your eyes or ingestion at their in-use concentration?

PATIENT SAFE

The first priority of any endoscope disinfectant is its ability to kill all of the micro-organisms encountered during endoscopy.

'SCOPE SAFE

An endoscope disinfectant must not damage the endoscope. It shouldn't need wipes or protective secondary lacquers to be applied.

ORGANISMS TESTED FOR SUSCEPTIBILITY TO HOCL:

Bacillus subtilis var niger, Desulfovibrio indonensis, Clostridium difficile, Helicobacter pylori, Vancomycin resistant Enterococcus species, Candida albicans, Various Mycobacterium species (avium, chelonae, smegmatis, tuberculosis), Pseudomonas aeruginosa, E.coli O157, Enterococcus faecalis, Polio virus type 2 Sabin strain, Duck hepatitis B virus, HIV-1 strain 3036, MSSA, MRSA, VRSA, Avian Flu, Micrococcus luteus, Corynebacterium amycolatum, Haemophilus influenzae, Proteus mirabilis, Klebsiella pneumoniae, Salmonella paratyphi, Vibrio cholera, Cholera phage viruses, Streptococcus pyogenes and Aspergillus niger.

HOCI PEER REVIEW PAPERS

1. V. Zinkevich, I.B. Beech, R. Tapper, I. Bogdarnia (2000) Journal of Hospital Infection 46: 153-156; The effect of Super-oxidised water on Escherichia coli.
2. H. Hays, P.R. Elliker, and W.E. Sandine (1966) Applied Microbiology, page 575-581; Microbial Destruction by Low Concentrations of Hypochlorite and Iodophor Germicides in Alkaline and Acidified Water.
3. I.B. Beech, V. Zinkevich, J.A. Sunner, C.C. Gaylarde, (2007) Technical Report; Evaluation of the effect of Salvox (Stabilised HOCl) on Planktonic Populations of model marine bacteria: Aerobic slime forming bacterium of the Pseudomonas Genus and anaerobic sulphate-reducing bacterium Desulfovibrio alaskensis.
4. J.B. Selkon, G.W. Cherry, J.M. Wilson, M.A. Hughes (2006) Evaluation of Hypochlorous acid washes in the treatment of chronic venous leg ulcers.
5. N. Shetty, S. Srinivasan, J. Holton, G.L. Ridgway, J.B. Selkon (1997) Evaluation of Microbicidal activity of a new disinfectant; against vegetative Bacteria, Spores, *Candida albicans*, *Mycobacterium* species and Viruses.
6. N. Shetty, S. Srinivasan, J. Holton and G.L. Ridgway (1999) Journal of Hospital Infection 41:101-105 Evaluation of microbiocidal activity of a new disinfectant: Sterilox 2500 against *Clostridium difficile* spores, *Helicobacter pylori*, vancomycin resistant *Enterococcus* species, *Candida albicans* and several *Mycobacterium* species.
7. J.B. Selkon, R.B. Babb, R. Morris (1999) Evaluation of the antimicrobial activity of a new super-oxidised water: Sterilox for the disinfection of endoscopes.
8. J.B. Selkon, A. Crossley (2009) Analysis of Hypochlorous Acid.
9. J. Lorrain Smith, A. Murray Drennan, Theodore Rettie, and William Campbell Experimental Observations on the antiseptic action of Hypochlorous acid and its application to wound treatment. Br Med J Jul 1915; 2: 129 - 136; doi:10.1136/bmj.2.2847.129.
10. Hypochlorous acid as a potential wound care agent. Journal of burns and Wounds April 11th Nov 2011. Registered Office: Dairy Cottage, Rulholme, Irthington, Carlisle Cumbria CA6 4NQ Company No: 690784
11. International journal of food microbiology 1987 page 183-186, the effect of ph on hypochlorite as a disinfectant, Granum, Magnusson.

EN STANDARDS

1. BS EN 1040:1997- Basic bacterial activity
2. BS EN 1040:1997- Quantitative suspension tests evaluating bacterial activity
3. EN 1275:2205- Fungicidal activity. Sporidical testing against *C. diff* – HIRL, Birmingham
4. EN 13727; Bacterial activity against;
 - a. *Pseudomonas aeruginosa* NCTC 6749
 - b. *Staphylococcus aureus* NCTC 10788
 - c. *Enterococcus hirae* NCTC 12367. Ref, J Burns Wounds, 2007; 6; e5, Published on line 2007 April 11
5. BS EN 1276:1997. Chemical disinfectants and antiseptics — Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas — Test method and requirements (phase 2, step 1), British Standards Institute. 1997.
6. BS EN 13704:2002. Chemical disinfectants — Quantitative suspension test for the evaluation of sporidical activity of chemical disinfectants used in food, industrial, domestic and institutional areas — Test method and requirements (phase 2, step1) 2002.
7. BS EN 13697:2001. Chemical disinfectants and antiseptics — Quantitative non porous surface test for the evaluation of bactericidal and/or fungicidal activity of chemical disinfectants used in food, industrial, domestic and institutional areas.



Montrose House, Montrose Street,
Stoke-on-Trent, Staffordshire, ST4 3PB.

Telephone: 01782 594164

Web: www.pfemedical.co.uk

E-mail: sales@pfemedical.co.uk

