

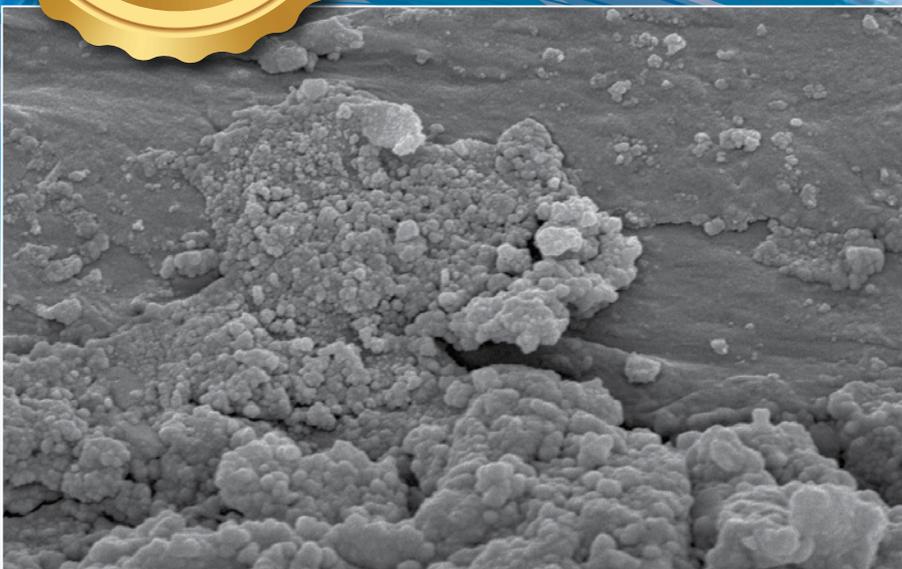
Surfex[®]

Dry Surface Biofilm
Remover and Surface Disinfectant

ARTG No: 257360

WORLD'S
FIRST
PROVEN

**DRY SURFACE
BIOFILM REMOVER**



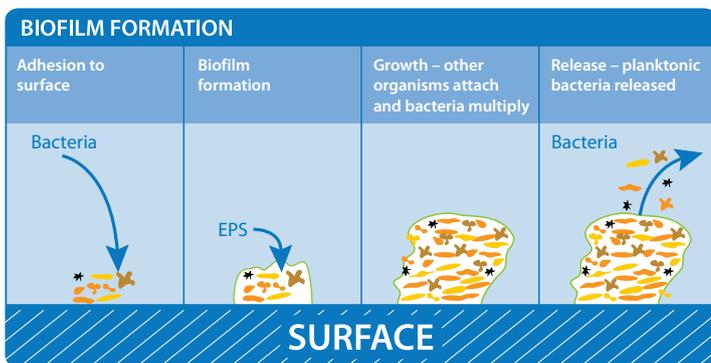
SURFEX[®] is the world's first Dry Surface Biofilm Remover and Surface Disinfectant with proven scientific data and patents pending. The Surfex[®] label lists that it is proven to kill *Clostridioides difficile*, *Mycobacterium terrae* (TB), *Candida auris* and Coronaviruses including SARS-CoV-2 (COVID-19).



Surfex®

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Remover and Surface Disinfectant

WHAT IS A BIOFILM?



Scan the QR code to see an educational video on biofilm formation

A biofilm is a thin layer of microorganisms adhering to a surface. These adherent cells produce a matrix of Extracellular Polymeric Substance (EPS), a sticky type of glue like material. The cells then become embedded within the EPS which provides a protective environment for viable bacteria and viruses.

Biofilms can be found widely throughout the environment. For example, biofilms are present on teeth as dental plaque. They are also found in water supplies, air conditioning units, ship hulls, paper manufacturing, oil recovery, food processing, along with many other surfaces within healthcare facilities.

DRY SURFACE BIOFILMS

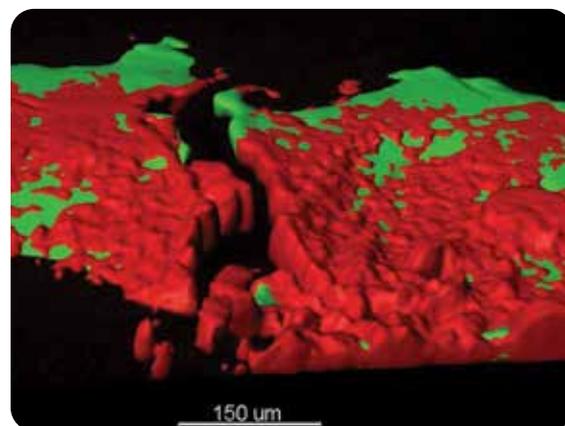
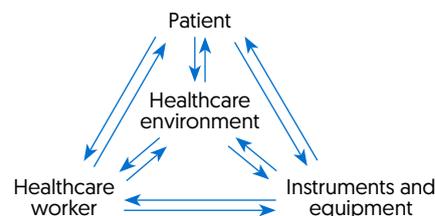
Biofilms have traditionally been found in aqueous environments.¹ However recent research has found biofilm to also proliferate on dry surfaces.² Given dry surfaces lack a ready source of water and nutrients which are available in an aqueous environment the mechanism of formation of these dry surface biofilms is an area for ongoing research.

Healthcare environments have now been shown to be contaminated with pathogenic microorganisms residing in dry surface biofilms despite current cleaning and disinfecting practice.^{2,3}

The presence of dry surface biofilms are a new factor to consider in controlling Multi Drug Resistant Organisms (MDROs) in healthcare environments.

Dry surface biofilms exude a different extracellular matrix to the biofilms normally found in wet environments ("Wet Biofilm").⁴ As a result, dry surface biofilms have proven to be much more resistant to removal by wet biofilm removing products such as Matrix®. This extracellular matrix is typically richer in protein than the EPS found in biofilms grown in wet environments⁴. The extracellular matrix protects the microorganisms embedded within them from multiple factors including desiccation (drying out) and disinfectants (biocides). Most naturally occurring biofilms typically contain multiple species of micororganisms (Polymicrobial) and can build up over time to be quite thick.

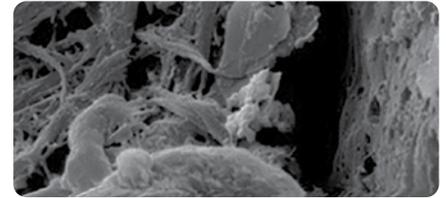
Why do we care if biofilms are on equipment or surfaces within healthcare?



Patient Room Chair – Live dead stain: Red Bacteria is dead and Green Bacteria is live.

DRY SURFACE BIOFILMS

Recent ground-breaking research has discovered that biofilms also proliferate on dry surfaces as well as the previously known wet surfaces. Dry surface biofilm has been demonstrated to be remarkably resistant to biocides such as chlorine, and even resistant to heat treatment such as autoclaving.⁵ Dry surface biofilm can be found on most surfaces within a healthcare setting including curtains, bed rails, chairs, phones and even patient charts and could contribute significantly to Healthcare Associated Infections [HAIs].¹⁷



Dry surface biofilm on a keyboard.

SCIENTIFIC DATA

SURFEX® BIOFILM REMOVAL

Research has shown that:

- Dry surface biofilms were present on 41/44 [93%] of samples taken from a variety of high touch objects in a tertiary teaching hospital intensive care unit.²
- Viable and culturable organisms were present in 23/44 [52%] of samples.
- 12 [27%] of these samples were growing Multi-Drug Resistant Organisms [MDROs]. The ICU had been subject to two cycles of hypochlorite disinfection prior to sampling.²

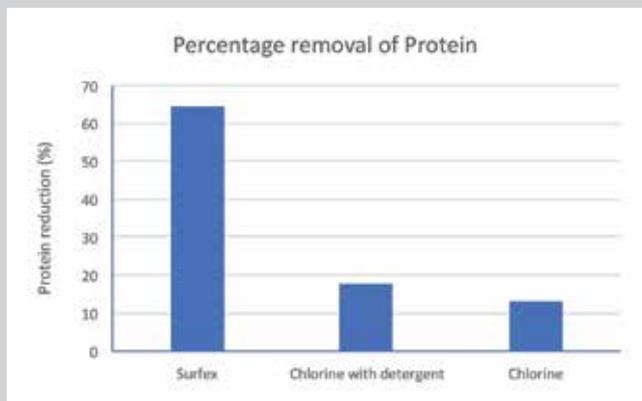
Further sampling has been conducted in multiple healthcare and hospital settings across numerous countries confirming

a similar rate of contaminated surfaces in the environment.

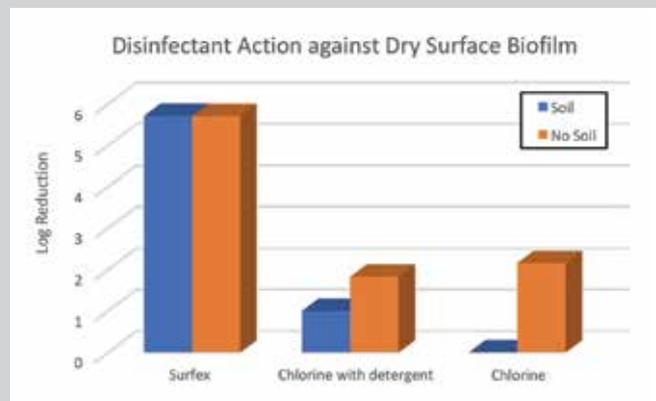
Research has also proven that chlorine at recommended concentrations is failing to remove significant amounts of dry surface biofilm [and associated bacteria] from surfaces. This research also confirmed the fact that organic soil [such as protein] can significantly deactivate chlorine-based disinfectants. This suggests that current cleaning and disinfection practices are inadequate and new products should be considered.⁸

Surfex® has been demonstrated to reduce bacterial loading within a dry surface biofilm both under clean and dirty conditions.⁸

The chart below shows the % reduction of protein, with the highest reduction being achieved by Surfex®.⁸



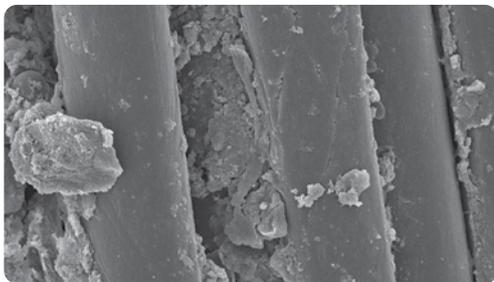
Surfex® has been tested and shown to be superior to Chlorine and other Disinfectant types in all aspects of Dry Surface Biofilm Removal and Surface Disinfection.⁸



MATERIALS COMPATIBILITY

Surfex® has been assessed for compatibility on a variety of surfaces likely to be encountered during use in the healthcare environment. These surfaces include a variety of metals, stethoscopes, sphygmomanometers and microfibre cloths. Testing has also been conducted vs chlorine for comparative purposes. Surfex® clearly shows significantly better materials compatibility.

Surfex® has superior materials compatibility when compared with chlorine based products.



Dry surface biofilm on a curtain.

COMPARISONS OF SURFEX® VS CHLORINE BASED PRODUCTS

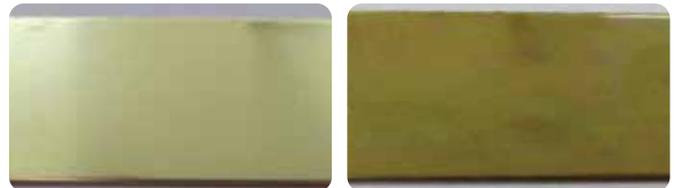


Figure 1 - Comparison of Brass test article after multiple exposures to Surfex® (left) or Chlorine based product (right)



Figure 2 - Comparison of Sphygmomanometer test articles after multiple exposures to Surfex® (left) or Chlorine based product (right)



Figure 3 - Comparison of blue microfibre cloths after multiple exposures to Surfex® (left) or Chlorine based product (right)

REFERENCES

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J.A. Otter, K. Vickery, J.T. Walker, E. deLancey Pulcini, P. Stoodley, S.D. Goldenberg, J.A.G. Salkeld, J. Chewins, S. Yezli, J.D. Edgeworth. *Journal of Hospital Infection* 89 [2015] 16-27
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- 8. 'The effect of disinfectant formulation and organic soil on the efficacy of oxidising disinfectants against biofilms'**
D. Chowdhury, A. Rahman, H. Hu, S.O. Jensen, A.K. Deva, K. Vickery. *Journal of Hospital Infection* October 2018

Surfex®

Dry Surface Biofilm
Remover and Surface Disinfectant

ABOUT SURFEX®

Surfex® has a unique blend of ingredients which, when dissolved in water provides a solution containing a blend of buffered peracetic acid and surfactants which ensures it will provide disinfection efficacy, as well as the dry surface biofilm removal critical for healthcare environments. Surfex® is supplied in unidose sachets for convenience and to minimise storage requirements.

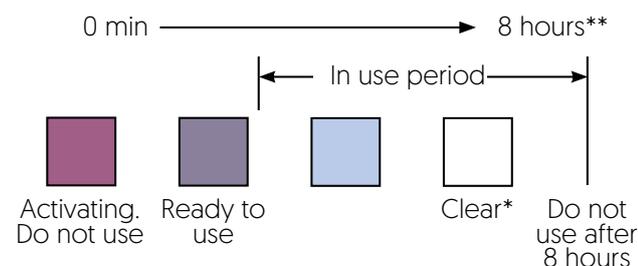
It is included on the Australian Register of Therapeutic Goods [ARTG No: 257360].

Surfex® is intended for use on environmental surfaces and for non-critical medical devices such as hospital beds and theatre trolleys.

Key Benefits of SURFEX® include:

- World's first proven dry surface biofilm remover with scientific data.
- Proven to reduce bacterial loading within a dry surface biofilm both under clean and dirty conditions.
- Effective in reducing MDROs in a healthcare environment.
- An in-built detergent system that allows 'all in one' cleaning and disinfecting of surfaces.
- Significantly superior disinfection performance versus chlorine.
- Patented colour coded indicator system shows when the solution has a biocidally effective concentration of peracetic acid and is ready to use.

COLOUR CHART:



*Over time the product will change from a blue colour to clear. It is still 'ready for use', and can be used up to the 8 hour mark. ** The solution must be used within 2 hours if there is a known outbreak of *Clostridioides difficile* or *Mycobacteria* [TB].

DIRECTIONS FOR USE:

- Please note: SURFEX® requires a 5 minute contact time at 20°C for disinfection of most bacteria, fungi or viruses. A 10-minute contact time is required for *Mycobacteria* [TB] or if there is a known outbreak of *Clostridioides difficile*.
- Apply to surface or instrument for disinfection.
- SURFEX® must be used within 8 hours of dilution, or within 2 hours if there is a known outbreak of *Clostridioides difficile* or *Mycobacteria* [TB].

Please note: Not for use on any invasive surgical instruments.

Additional information is listed in the Safety Data Sheet.

PATENTED. ARTG: 257360.

CONTAINS: Sodium Percarbonate 492g/kg

Active Ingredient: 0.21% w/v Peracetic Acid (once diluted with water)

Supplied in sachets in a powder format.

SURFEX® is proven to kill:

Spores:	Fungi:	Viruses:
<i>Clostridioides difficile</i>	<i>Candida albicans</i>	Adenovirus
<i>Clostridium sporogenes</i>	<i>Candida auris</i>	Coronaviruses including SARS-CoV-2 [COVID-19]
	<i>Trichophyton mentagrophytes</i>	Herpes simplex virus 1
		Influenza
		Parvovirus
		Norovirus
Bacteria:		
<i>Acinetobacter baumannii</i>	<i>Mycobacterium terrae</i> (TB)	<i>Staphylococcus aureus</i> (MRSA)
Carbapenem Resistant <i>Klebsiella pneumoniae</i> [CRE/CPE]	<i>Proteus vulgaris</i>	<i>Stenotrophomonas maltophilia</i>
<i>Clostridioides difficile</i> (vegetative)	<i>Pseudomonas aeruginosa</i>	Vancomycin – Resistant <i>Enterococcus faecalis</i> [VRE]
<i>Escherichia coli</i>	<i>Salmonella choleraesuis</i>	

SURFEX® product order codes:

- 4 x 100 x 8.5g Sachets (for use in 500mL bottles)
Product Code: 160159
- 4 x 20 x 85g Sachets (for use with mop and bucket) Product Code: 160160
- 500ml Mixing bottle.
Product Code: 610549





To watch our educational video on 'How to clean and disinfect surfaces using Surfex®', scan the QR code.

SURFEX® is novel technology and a revolutionary step forward in targeting dry surface biofilms in healthcare

Whiteley would like to acknowledge Ahmad Almatroudi, Anita Jacombs, Khalid Aljohani and Dr Jessica Farrell for the SEM photos shown in this brochure.

EDUCATIONAL RESOURCES:

Educational resources available on request.

HEALTH STATEMENT

Whiteley makes every effort to ensure that its products are always safe to use, however products can affect individuals differently and the company cannot predict individual responses. Therefore careful reading of the SURFEX® SDS is essential prior to first use.

ENVIRONMENTAL STATEMENT

Whiteley manufactures products that comply with Australian and International environmental policy. Whiteley aims to ensure that every product is 100% biodegradable, whilst achieving optimal performance and benefit to customers.

All Whiteley products are supplied in 100% recyclable containers.

DISTRIBUTED BY:

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Whiteley 

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