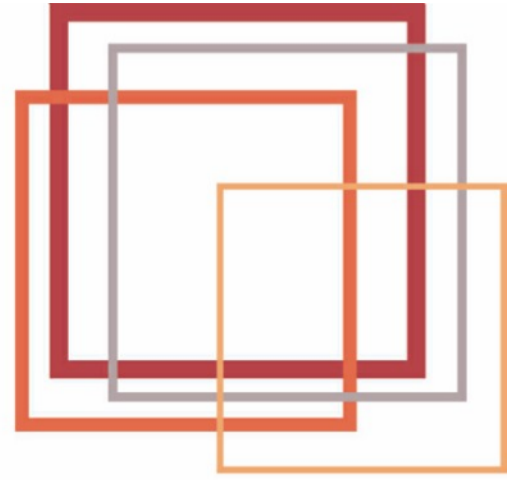


valley blinds



shield<sup>TM</sup>plus  
protective intelligent fabric



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## Bacteria

Micrococcus sp.  
Staphylococcus epidermidis  
Enterobacter agglomerans  
calcoaceticus  
Staphylococcus aureus (pigmented)  
aureus (non-pigmented)  
Klebsiella pneumoniae ATCC 4352  
Pseudomonas aeruginosa  
campestris  
Corynebacterium bovis  
Pseudomonas aeruginosa PDR-10  
Streptococcus faecalis  
Escherichia coli ATCC 23266  
Escherichia coli  
Proteus mirabilis  
Proteus mirabilis  
Citrobacter diversus  
Salmonella typhosa  
Salmonella choleraesuis  
Methicillin-resistant Staphylococcus aureus

Mycobacterium smegmatis  
Mycobacterium tuberculosis  
Brucella cania Acinetobacter  
Brucella abortus  
Brucella suis Staphylococcus  
Streptococcus mutans  
Bacillus subtilis  
Bacillus cereus Xanthomonas  
Clostridium difficile  
Clostridium perfringens  
Haemophilus influenzae  
Haemophilus suis  
Lactobacillus casei  
Leuconostoc lactis  
Listeria monocytogenes  
Propionibacterium acnes  
Proteus vulgaris  
Pseudomonas cepacia  
Pseudomonas fluorescen

## Fungi

Aspergillus niger  
Aspergillus fumigatus  
Aspergillus versicolor  
Aspergillus flavus  
Aspergillus terreus  
Penicillium chrysogenum  
Penicillium albicans  
Penicillium citrinum  
Penicillium elegans  
Penicillium funiculosum  
Penicillium humicola  
Penicillium notatum  
Penicillium variable

Mucor sp.  
Tricophyton mentagrophytes  
Tricophyton interdigitalie  
Trichoderma flavus  
Chaetomium globusum  
Rhizopus nigricans  
Cladosporium herbarum  
Aerobasidium pullulans  
Fusarium nigrum  
Fusarium solani  
Gliocladium roseum  
Oospora lactis  
Stachybotrys atra

## Yeast

Saccharomyces cerevisiae

Candida albicans 1

## Algae

Oscillatoria borneti LB143  
Anabaena cylindrica B-1446-1C  
Selenastrum gracile B-325  
sp. LB11

Schenedesmus quadricauda  
Gonium sp. LB 9c  
Volvox sp. LB 9 Pleurococcus  
Chlorella vulgarus

# Reducing Infection: Healthcare's Urgent Challenge

Over the past two decades, Hospital Acquired Infection (HAI) has presented a significant challenge.

The impact that such infections have on patient safety, health and well-being brings distress to both them and their families, not to mention the healthcare professionals caring for them. This burden to human welfare is compounded by the financial cost to the NHS in terms of service delivery. Such costs are not isolated to the hospital alone but to the extended network of healthcare services with prolonged inpatient stay, further treatments, outpatient consultations and subsequent visits to GPs and community care.

It is a disturbing statistic that approximately 5,000 people die each year in the UK from directly attributable HAI, and in a further 15,000 cases it is considered a substantial contributor.

It is known that the routes to infection are multiple, diverse and it is difficult to quantify the role of the environment in the transfer of infection. Some report that 19% of contamination may be attributable to the environment, others as much as 40%. The greatest risk for patients is contamination in their immediate vicinity such as bed rails, lockers, curtains, bedding and upholstery.

Valley Blinds is acutely aware of HAI  
and this is why we supply....



**shield<sup>™</sup>plus**  
protective intelligent fabric



# shield<sup>plus</sup>

protective intelligent fabric

Curtain and bedding fabrics are the latest addition to the Valley Blinds anti-microbial armoury. Shield It is a high quality, 100% flame retardant polyester fabric treated with a revolutionary technology,

powered by  
*Devan*

## mædical+

providing optimal and enduring anti-microbial protection for fabrics.

mædical™ is a unique, non-leaching and non-silver anti-microbial which has been proved effective against the broadest spectrum of bacteria and is resilient to the harshest laundry protocols whilst remaining bonded and durable for the life of the fabric.

mædical™ has been tested for effectiveness by L' Institut Pasteur de Lille under an EU-funded programme; FLEXIFUNBAR contract n° 505864 IP-SME-FP6.



# Not all anti-microbials are created equal nor do they work the same.

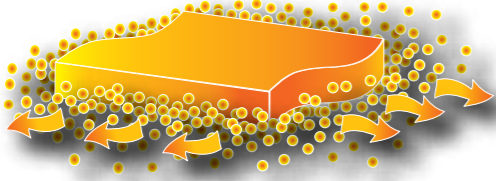

Previous reticence to adopting anti-microbial draperies in some hospitals can be attributed to the following concerns:

- depletion of the anti-microbial
- resulting in adaptive organisms
- ultimately immunity to the agent

This is understandable as the vast majority of anti-microbials work by migrating (or leaching) from the surface they are applied to. These conventional leaching types of anti-microbials leave the textile and chemically enter or react with the micro-organism, essentially acting as a poison. There is no doubt that they can be initially effective but they are used up and depleted in the process of working.

The effective alternative from Valley Blinds employs a non-migrating (non-leaching) anti-microbial protection that acts on the physical structure of the cell by piercing the cell wall. This anti-microbial does not migrate from the protected drapery and remains bonded and durable for the life of the fabric.

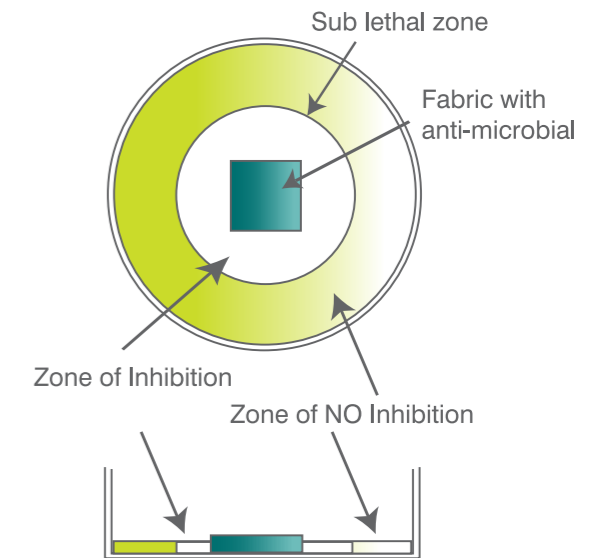
## Mode of Action

For Migrating	For Non Migrating
 <ul style="list-style-type: none"> <li>• Anti-microbial migrates from the substrate to the bacteria</li> <li>• Is used up and depleted in the process of working</li> <li>• Causes adaptive cells</li> <li>• Creates a resistance and immunity to the agent</li> <li>• Does not kill on contact</li> </ul>	 <ul style="list-style-type: none"> <li>• Anti-microbial acts by a mechanical process which attracts the bacteria and stabs the cell wall and electrocutes the biochemicals within</li> <li>• Does not migrate or deplete</li> <li>• Does not cause adaptive cells</li> <li>• Does not create immunity to the agent</li> <li>• Kills bacteria on contact</li> <li>• Remains effective for the life of the product</li> </ul>

# Migrating / Leaching anti-microbials

Migrating anti-microbials are initially effective but are used up and depleted in the process of working.

This migrating action is clearly demonstrated by the AATCC 147 test which produces the 'zone of inhibition' shown right:



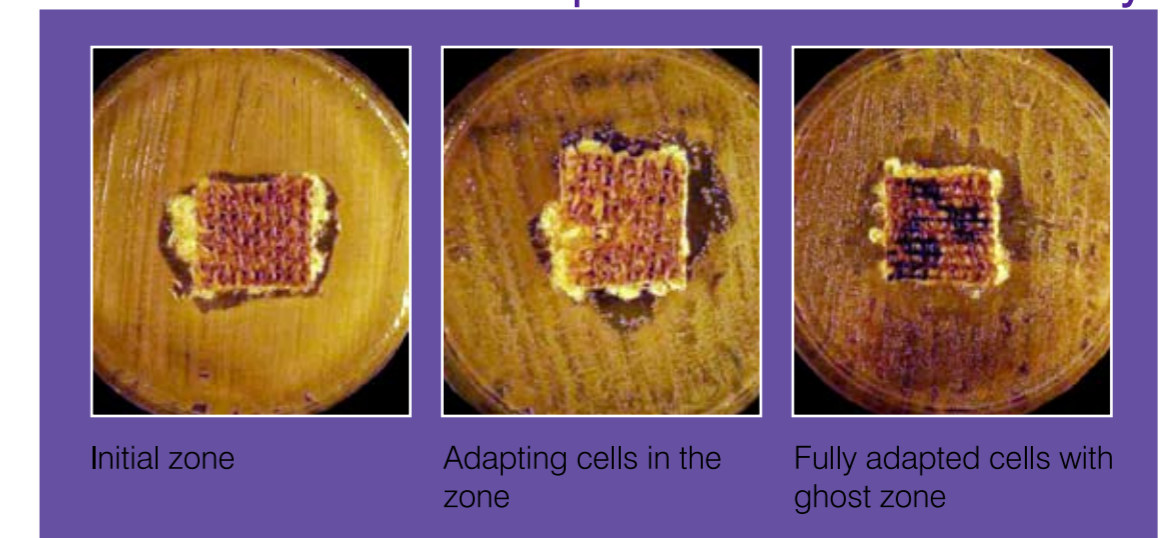
The 'zone of inhibition' is created by a migrating anti-microbial and clearly denotes the area where the anti-microbial has leached from the treated fabric to kill the surrounding micro-organisms.

The outermost edge of the zone is where resistant microbes produced by the leaching process can be found. The exposure of the microbe to a depleted dose (or sub-lethal dose) of an anti-microbial can cause mutation of their genetic materials allowing for resistance. This replicates through the reproductive process creating generations of micro-organisms that are no longer affected by the chemistry.

Products employing migrating technologies include:

BioCote, Cliniweave, See it Safe, BioActive and Enduracide which is used in many disposable curtains

## Potential to create adaptive cells and immunity



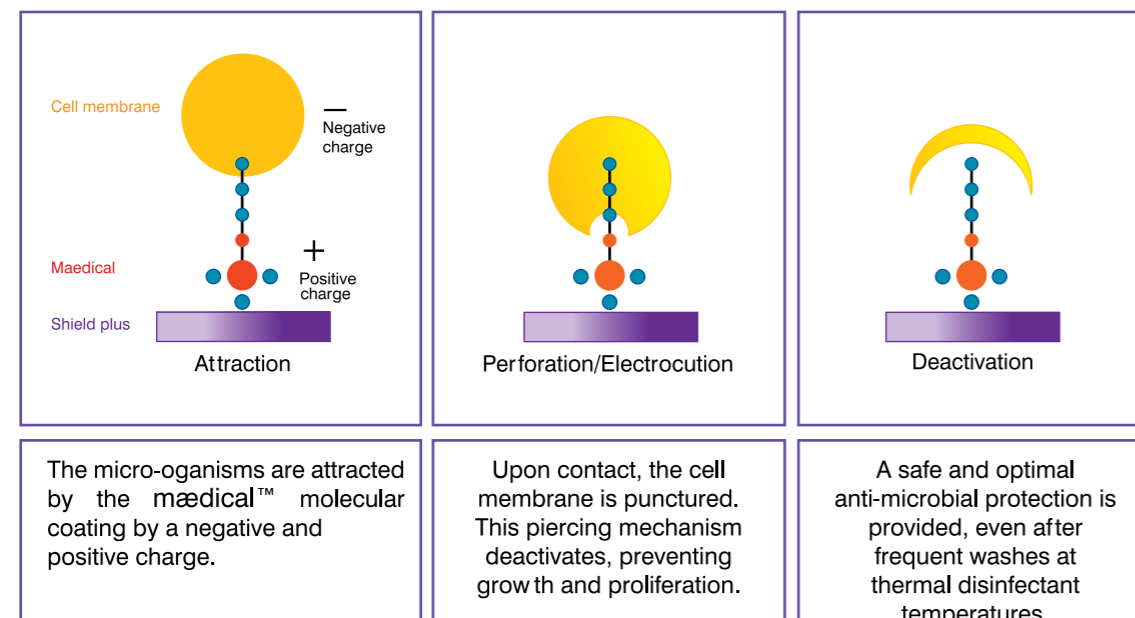


# The shieldplus solution

protective intelligent fabric

## Non-migrating / Non-leaching anti-microbials

Shield Plus employs a non-migrating technology. This technology, mædical™, is based upon the permanent application of a non-migrating molecular coating onto the fabric fibres. This coating destroys bacteria on contact. It is permanently bonded to the textile and does not act by 'poisoning' the microbe but, on a molecular scale, physically stabs the membrane and electrocutes the biochemicals within it.



**mædical+** powered by Devan anti-microbial tested at the renowned L'Institut Pasteur de Lille is not merely fixed to the fabric; it is chemically bonded making it a permanent part of the surface and allowing it to remain functional even after long-term use and repeated laundry cycles at thermal disinfectant temperatures.

## Responsible choice

Excellent skin tolerance (OECD 406, HRIPT)

Free of heavy metals, Silver, TBT, Formaldehyde, Triclosan, Arsenic, ...

Non toxic to waste water bacteria (activated sludge) and biodegradable (OECD 209 and 302B)

As mædical™ is a non-leaching anti-microbial it is a safe and responsible choice for the environment. Many migrating anti-microbial products contain phenols, heavy metals, arsenic, mercury and silver which are not only harmful to micro-organisms, but can also be harmful to humans. Migrating anti-microbials of all types have the propensity to contaminate the environment when used on curtains and bedding which undergo regular washing.

Silver is a commonly used leaching anti-microbial agent. Silver ions are toxic to all living cells, including micro-organisms. These silver ions are most toxic to water-living organisms, and of all the toxic heavy metals, only mercury can surpass this toxicity level. Washing curtains and bedding using silver as an anti-microbial presents an environmental hazard. It is also important to remember that the main work of sewage plants is performed by live bacteria.

By contrast, mædical™ is not a poison and is non-leaching, it remains bound and fixed to the fabric providing a permanent barrier against microbes. Shield Plus curtains and bedding protected by mædical™ can be burned or disposed of in landfill sites without adverse effect from the anti-microbial.

For so many reasons, Shield Plus is the obvious choice.

# Conclusions

- **Inhibits bacterial and fungal growth**

mædical™ ensures that Shield Plus draperies inhibit bacterial and fungal growth; the major cause of cross contamination and fabric odour.

- **Permanent, bonded and durable**

mædical™ is bonded to the fabric, creating Shield Plus, and is permanent and durable for the life of the fabric.

- **Resistant to harsh laundry protocols**

Can be washed at thermal disinfectant temperatures repeatedly with no diminution of effectiveness.

- **No depletion and no zone of inhibition**

mædical™ will not migrate or deplete and does not demonstrate a zone of inhibition ensuring no propensity to create immunity to the agent or adaptive organisms.

### Unmatched safety profile

- Not harmful to humans or the environment. (toxicity data available)

### Non-migrating

- Will not leach into the environment, transfer to other articles or skin.

### Applicable to a variety of basecloths

- For hospital draperies for cubicles, windows, shower curtains, and decorative bedding.

### Available in 100's of designs and colours

- Worldwide Registration

- .

# Security in Traceability

The Valley Blinds range of healthcare specific textiles combines attention to design and colour with the highest technical specification to produce durable, hard-working fabrics which assist healthcare professionals in designing environments which are cleaner, safer and even more resilient to the daily wear and tear experienced in extreme healthcare environments.

To secure our confidence in our product, and therefore our customers, we have worked with Devan Chemicals who monitor and quality assure Shield Plus during the various stages of its life. This includes a level of traceability which gives us the confidence to make the claims of previous pages.

Devan has worked with Valley Blinds at all stages of development and provide ongoing quality control and batch testing both at point of production and at regular, random intervals. The results of their tests give us the confidence to offer you a complete solution which is the safest, most practical and most aesthetically pleasing.



**shieldplus**  
protective intelligent fabric

epidermidis Mycobacterium tuberculosis Enterobacte  
agglomerans Brucella cania Acinetobacter calcoaceticus  
Brucella abortus Staphylococcus aureus (pigmented  
rucella suis Staphylococcus aureus (non-pigmented  
Streptococcus mutans Klebsiella pneumoniae ATCC 435  
Bacillus subtilis Pseudomonas aeruginosa Bacillus cereu  
kathomonas campestris  
Difficile Corynebacterium bovis  
erfringens Pseudomonas aeruginosa  
nfluenzae  
aecalis  
uis  
oli ATCC  
Lactobacillus  
ochelchia celli Leuconostoc lactis Proteus mirabilis Lister  
brevilytogonus caprificus ruminantium Bifidobacterium diversus  
Proteus vulgaris Salmonella typhosa Pseudomonas cepacia  
almonella choleraesuis Pseudomonas fluorescen Fungi. Aspergillus niger  
Mucor sp. Aspergillus fumigatus Tricophyton mentagrophytes Apergillus  
versicolor Tricophyton interdigitalie Aspergillus flavu  
richoderma flavus Aspergillus terreus Chaetomium globusum  
enicillium chrysogenum Rhizopus nigricans Penicillium



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Penicillium variable Yeast. Saccharomyces cerevisiae Candida