



# LAPISSHIELD TECHNOLOGY

For water-based coatings

## Who is Microban International?

Founded in 1984 by three biomedical engineers, Microban International, Ltd. is the global leader in built-in antimicrobial solutions.



Utilised by  
**800+**  
companies worldwide



Proudly displayed  
on more than  
**1000 products**

Globally acknowledged as a consumer Trustmark, the Microban® brand is utilised by 1,000+ companies worldwide and is proudly displayed on thousands of products in over 30 countries.

## What is antimicrobial technology?

Antimicrobial technology is a solution that inhibits the growth of microorganisms such as bacteria, mold, and mildew on treated products.

Microban has a portfolio of over 25 approved organic and inorganic antimicrobial technologies that can be engineered into products and surfaces. These technologies work to deliver 24/7 product protection against microbial growth, without impacting product performance or aesthetics.

## How can we help?

Once you've made the decision to implement antimicrobial protection into your product line, Microban's product development team will provide custom engineering services and work with you to formulate each aspect of the project. From initial concept and additive integration to official product launch, your dedicated account team will be by your side to deliver a suite of turnkey support services.

## LapisShield™: novel water-based coating technology

LapisShield™ is a new line of Microban antimicrobials designed specifically for water-based coating applications. This technology is free of heavy metals and designed to seamlessly integrate antimicrobial functionality into any water-based coating formulation. It eliminates the common struggles associated with aggregation and sedimentation during the mixing and dispersing process which reduces waste while maintaining efficiency and productivity. Coatings with LapisShield are UV stable and remain clear, showing minimal optical impact in comparison to traditional antimicrobial additives. LapisShield's broad-spectrum antimicrobial properties make products more appealing to cleanliness-conscious consumers and business buyers, particularly those likely to be used in moist, humid environments. LapisShield is a step forward in providing robust turn-key antimicrobial solutions to water-based coatings manufacturers.

### LAPISSHIELD

### TRADITIONAL ANTIMICROBIALS



### MICROBAN® LAPISSHIELD

### TRADITIONAL ANTIMICROBIALS

Clear and UV stable

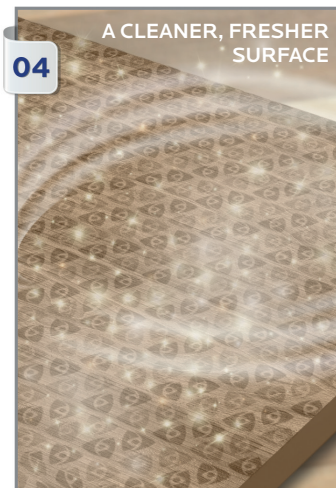
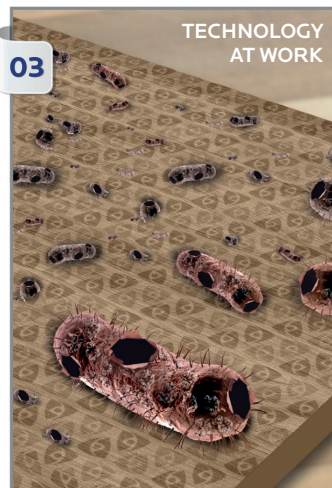
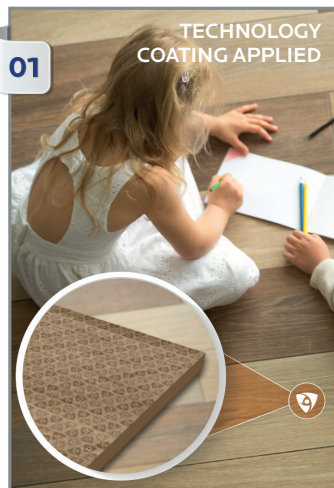
May cause yellowing or other negative visual defects

Easy to incorporate, mix, and disperse

Difficult to incorporate, mix and disperse

Stability after incorporation

May phase separate or settle due to gravity



## How does LapisShield™ work?

LapisShield™ utilises sodium-pyrithione antimicrobials to help inhibit bacterial growth on the treated surfaces up to 99.99% and prevent mould and mildew growth on the treated surfaces. Standard coating processes (i.e. spraying, roll-to-roll, dip, etc.) can be used to apply the technology. LapisShield™ remains constantly active on surfaces, disrupting internal enzymes, blocking metabolic pathways and creating an inhospitable environment where bacteria, mould and mildew cannot proliferate.

## Technical Data – At a Glance

|                        |                                                   |
|------------------------|---------------------------------------------------|
| Antimicrobial Efficacy | Antibacterial, Antifungal                         |
| Active                 | Sodium Pyrithione                                 |
| Appearance             | Amber Liquid                                      |
| Test Methods           | ISO 22196 (AB)<br>TM30(III) (AF)<br>ASTM G21 (AF) |

## Examples of LapisShield coating applications - Water-based coatings and Paints for application on:



Polymers



Wood



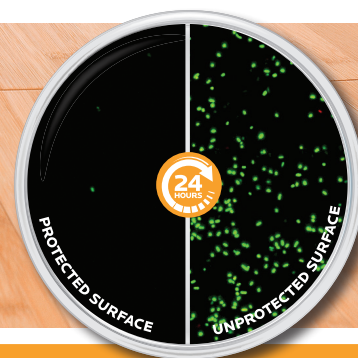
Metal



Glass ...And more

## 24-hour time lapse: untreated surface vs. LapisShield™ treated surface

Using confocal imaging, Microban® has captured the differences in bacterial growth on an unprotected surface versus a LapisShield protected surface. On an untreated surface, the bacteria thrive and reproduce rapidly. On a LapisShield treated surface, the bacteria struggle to survive and their numbers are reduced considerably.



## The Benefits



**Easy To Use** – Optimized processing and manufacturing requirements allow for easy incorporation to water-based coating systems



**Broad Spectrum Antimicrobials** - Effective against not just bacteria but also the growth of fungi including mold and mildew



**UV Stable** - Ideal solution for use in outdoor water-based coating applications



**24/7 Protection** - Effective against microbial growth on the surface of treated products 24/7 and for the expected life of coating products.



**Heavy Metal-Free Solution** – The technology does not contain heavy metal-based chemistries and is an effective alternative to metal-based antimicrobial additives



**Improved Quality** – Improved stability with minimal impact on optical properties of water-based coatings, making it ideal for transparent and thin coatings



**Multiple Applications** – Can be integrated into a wide range of water-based coating applications



**Global Registration** - The technology is registered with U.S. Environmental Protection Agency (EPA) and EU Biocidal Products Regulation (BPR)

**Get in touch** - For more information on our turnkey solutions for coatings, contact a member of the Microban team today.