ANTIMICROBIAL PROTECTION FOR CERAMICS

Who Is Microban International?

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

CONSUMER TRUSTMARK

Utilised by **250+ companies** worldwide

Manufactured into more than **1000 products**

Globally acknowledged as a consumer Trustmark, the Microban® brand is utilised by 250+ companies worldwide. Our proven technologies can be found in more than 1,000 products in over 30 countries.

Did You Know?

Microbes are everywhere, covering the products and surfaces that we encounter every day. On an unprotected surface, bacteria can double in number every 20 minutes! That's why, now more than ever, consumers are looking for products with an added level of cleanliness protection.

What Is Antimicrobial Technology?

Antimicrobial technology is a solution that inhibits the growth of microorganisms such as bacteria, mould and mildew.

Microban® has the world's largest portfolio of organic and inorganic antimicrobial technologies. Depending on the manufacturing process and material application, these technologies are formulated into specific additives that are then integrated seamlessly into a product.

What Effects Can Microbes Have on Ceramic Products?

Ceramic products used in homes, healthcare facilities, industrial settings and other public places can harbour microbes due to moisture, heat and humidity. Such conditions can accelerate microbial growth, with bacteria doubling in number every 20 minutes on an untreated surface. In many circumstances, once microbes have begun to proliferate on a ceramic surface, demanding cleaning routines are required to keep growth under control.

Staining

*Microbial growth can cause **a ceramic** surface to **look unsightly***

Bad Odour

*Microbial growth can result in the **e**mission of **foul-smelling odours***

Premature Degradation

*Microbes can negatively **impact the durability** of a **ceramic** surface*

Cross-Contamination

*Microbes can survive on a **ceramic** surface for several weeks, causing it to become a vector of transmission for **degrading** bacteria*

Unrealistic Cleaning

*Controlling microbial growth on a **ceramic** surface can require demanding cleaning routines that may **compromise the surface** and/or interrupt operations.*

PROTECTION THAT LIVES ON MICROBAN®

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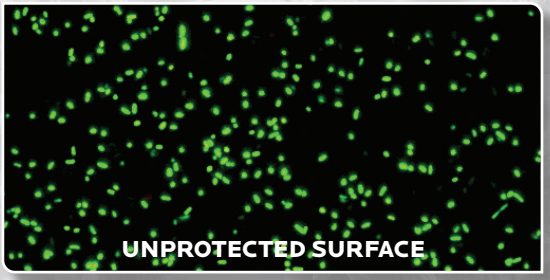
24-Hour Time Lapse: Untreated Surface vs. Microban® Treated Surface

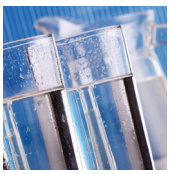
Using confocal imaging, Microban® has captured the differences in bacterial growth on an unprotected surface versus a Microban® protected surface. On an unprotected surface, the bacteria thrive and reproduce rapidly. On a Microban® protected surface, the bacteria struggle to survive and are reduced by up to 99.99%.



Applications for Microban® Ceramics Technologies

The powerful effects of Microban® antimicrobial product protection for ceramics can be integrated into floor and wall tiles, sinks, toilets, bathtubs, showers, dinnerware, kitchen appliances and much more.






How Are Microban® Technologies Added to a Ceramic Product?

Microban® technologies are embedded within the ceramic glaze, delivering continuous surface protection* against bacteria without affecting gloss or matte surfaces, colour or durability. In addition, Microban's new generational antimicrobial packages are highly tolerant of raw material variations in the intrinsic glaze formulations and therefore do not constrict the ceramics processor to using highly specific sources for their glaze chemistries.

Microban® Technologies vs. TiO2

Photocatalytic Titanium Dioxide (TiO2) has been recognised as an antimicrobial and antifungal solution in a variety of applications, but there are limitations to the effectiveness of products treated with TiO2. Unlike Microban® technologies, TiO2 must be activated with high levels of UVA lighting to maintain antibacterial efficacy. Such UVA lighting can be non-existent, weak or inconsistent under certain real-world circumstances, especially indoors[1]. In addition, TiO2 has been shown to react negatively with ammonia, which can be found in common household cleaning products. This interaction may produce toxic products in the home environment[2].

Comparison of Key Attributes	MICROBAN®	TiO2
24-hour Antimicrobial	✓	
Effective Indoors	✓	
Effective Outdoors	✓	✓
Air Quality Neutral	✓	
Ammonia Compatible	✓	
Improves Cleanliness	✓	

What Are the Advantages for Ceramics Manufacturers?

Microban's exclusive antimicrobial technologies make ceramic products more appealing to hygiene-conscious consumers and business buyers.

Benefits of Microban® Protected Ceramics

- Inherently cleaner and more durable for their expected lifetime
- Effective against the growth of stain and odour-causing bacteria 24/7
- Help to minimise the risk of bacterial cross-contamination in hygiene critical environments
- Contain technology that does not wear off, leach out or negatively affect the environment
- Provide an added level of cleanliness protection in-between cleanings
- Easy and cost effective to create
- Boast a patented antimicrobial technology that provides a distinct competitive advantage

Get in Touch

No matter your industry, the Microban® brand is your assurance of durable and effective antimicrobial protection that your customers will recognise and trust. Contact us today.

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* So long as the glaze remains intact.

[1] K.Welch, "Passive purification – Effectiveness of photocatalytic titanium dioxide to convert pathogens and pollutants," American Ceramic Society Bulletin, 4 (9), 25-30 (2014)

[2] Mulu A. Kebede, Mychel E. Varner, Nicole K. Scharko, R. Benny Gerber, and Jonathan D. Raff, J. Am. Chem. Soc., 135 (23), 8606–8615 (2013)

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