

Hard Surface Antimicrobial Agent

TILE DOCTOR
SHIELD 



Hospitals and
Medical Facilities



Office
Buildings



Homes



Restaurants



Schools and
Universities

an·ti·mi·cro·bi·al

Pronunciation: \ an-tī-mī-'krō-bē-əl \

Variant: an-ti-mi-cro-bic | \ an-tī-mī-'krō-bik \

Destroying or inhibiting the growth of microorganisms

mi·cro·or·gan·ism

Pronunciation: \ mī-'krō-'ōr-gə-,ni-zəm \

Any organism too small to be viewed by the unaided eye, such as bacteria, protozoa, fungi and algae

The Tile Doctor Shield® Difference

Built-in Hard Surface Protection

Tile Doctor Shield is the first non-toxic antimicrobial product approved for hard surfaces that has no potential for environmental impact. Tile Doctor Shield is based on a unique antimicrobial technology that is built into hard surfaces and grouting products, effectively controlling bacteria, fungi, algae and yeasts on a wide variety of treated articles and substrates.

Quality

- Easy to clean and maintain
- Eliminates need for harsh cleansers
- Keeps surfaces cleaner, longer
- Registered and available worldwide
- Prevents deterioration of surfaces due to microbial contamination

Safety

- No VOCs (volatile organic compounds)
- Does not leach
- Does not rub off or migrate onto the skin
- No heavy metals, silver, arsenic or polychlorinated phenols
- Safe enough for 'next to skin' applications
- More than 40 years of proven, effective use

Durability

- Built-in to last for the life of the treated article
- Covalently (permanently) bonds to surfaces
- Cross-linking helps to ensure maximum effectiveness
- Applied under tightly controlled and patented process for optimal durability

Effectiveness

- 99.9% kill log
- Effective against a broad spectrum of microbes

Shield Equals Protection

Part of the Green Equation

Tile Doctor Shield® (The Shield) can be an active part of a corporate sustainability and wellness strategy.

Cleaner, Healthier Surfaces

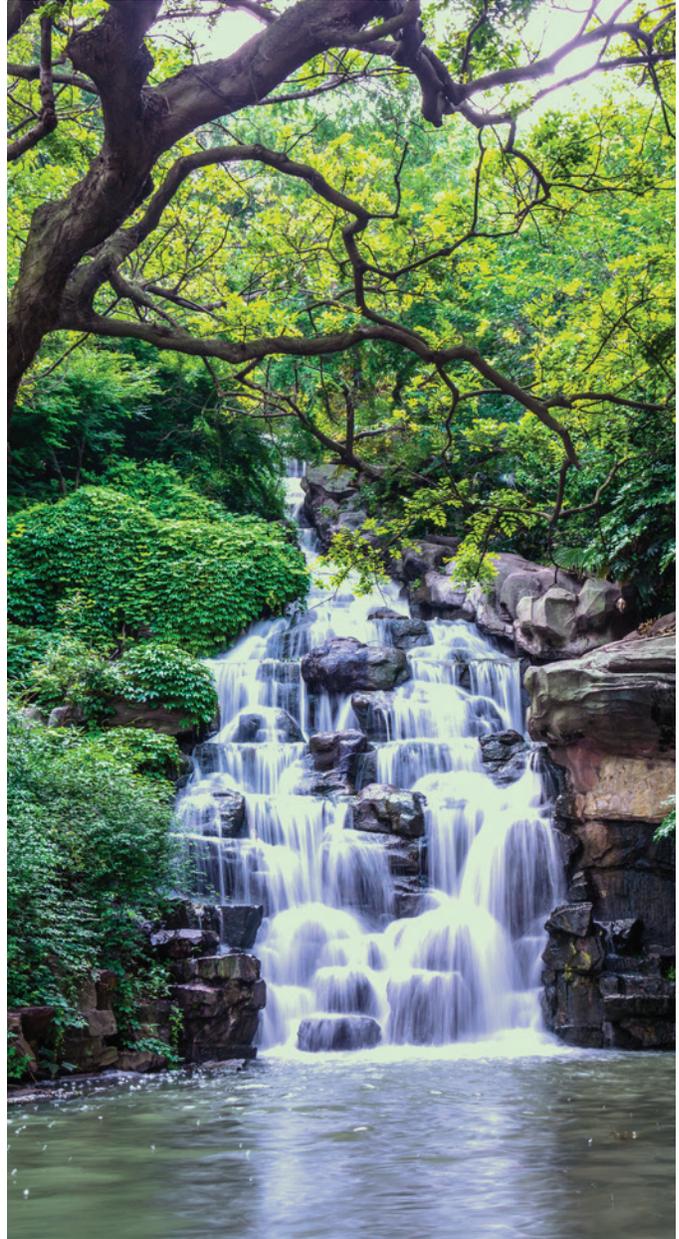
Microbes can wreak havoc on the appearance and functionality of any flooring or surfacing product. They can contribute to stains and strong odors, leading to less clean – and potentially unsafe (and unhealthy) – surfaces. Functionally enhanced antimicrobial protection such as The Shield can deliver additional safeguards against microbial contamination on both horizontal and vertical surfaces. This extra level of protection will help to extend the life of the installation and provide a more sanitary surface between cleanings while also helping to avoid odors and stains.

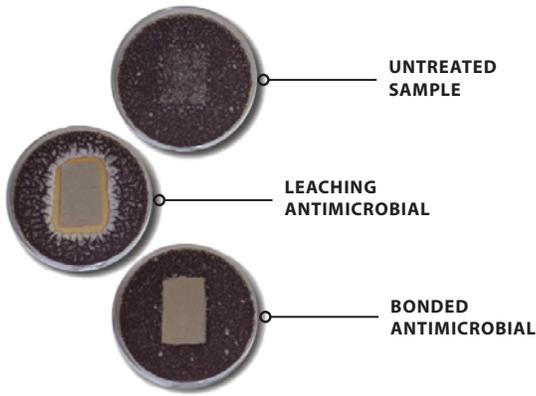
Better Indoor Air Quality

VOC (volatile organic compound) levels are a critical determinant in LEED Certification for indoor air quality. The Shield contains no VOCs, and the product's demonstrated effectiveness against odor causing bacteria leads to healthier indoor air quality.

Cradle to Cradle Accountability

Sustainability should be considered from every aspect of sourcing, manufacturing, transportation, use, disposal and recyclability. Many antimicrobials seep into the water, creating harmful effects for wastewater or run-off, which can negatively impact marine life and other wildlife. Because The Shield is a bonded antimicrobial, it won't leach or off-gas into the environment.



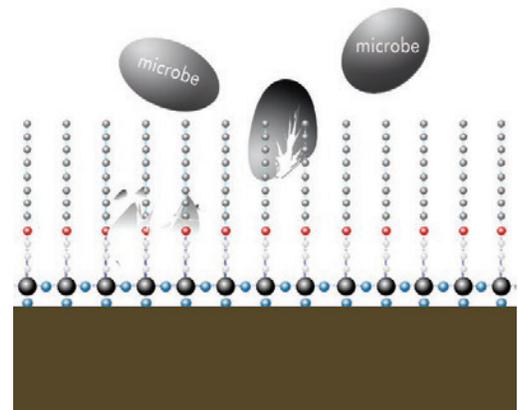


Non-Leaching

The Shield controls the growth of microorganisms without the use of chemical toxins. Competing technologies utilize heavy metals, silver, triclosan or other leaching chemistries that emit low doses of toxins. Once the supply of chemicals is depleted, there is a diminishing return on efficacy.

Physical Elimination of Microbes

In contrast to a leaching technology, in which the cell membranes of microbes are poisoned, The Shield provides a mechanical barrier of antimicrobial protection. Upon direct contact with The Shield, the cell membranes of microbes are physically ruptured. The average microbe (3 microns wide) is drawn onto a surface with magnetic force, rupturing the cell wall with the equivalent of 25,000 spears. The modified surface becomes inhospitable to a broad spectrum of bacteria, algae and fungi. There is no chemical remaining to be consumed by microbes – or by humans.

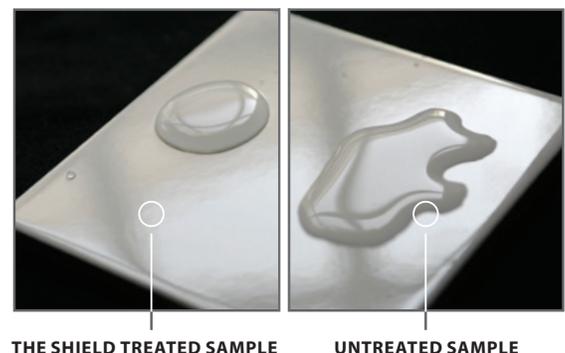


Long-term Effectiveness

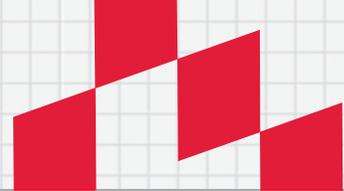
Adding to The Shield's safety profile is its characteristic of covalently (permanently) bonding to hard surfaces, offering a built-in system of protection. The Shield provides continuous control of microbial growth and will not dissipate or become depleted as long as the surface remains intact. The result is a protected environment long after traditional antimicrobials or sanitizers have stopped working, along with reliable surface protection in between routine cleanings.

Easier to Clean Properties/Facilities

The Shield can make a surface hydrophobic (water repelling), simplifying cleaning. The protected surface easily releases stains, and prevents hard water and soap scum deposits. In most cases, a neutral cleanser is all that is required to maintain surfaces treated with The Shield. Because no harsh cleansers are needed, fewer toxic chemicals go down the drain during the cleaning process.



History of the Tile Doctor Shield® Molecule



History

Dow Corning Corporation, the largest supplier of silicone and silane chemicals in the world, began a research program in the late 1960s aimed at determining if organofunctional silanes could be used as an alternative to more traditional leaching chemical pesticides. Company researchers posed the following question: “Could tying these molecular chains to target surfaces with a silane prevent them from migrating into the environment through leaching or volatilizing?” The outcome of this question would lead to safer, more efficient and more effective pesticides, including antimicrobials.

Over a period of 10 years, a large variety of formulations were tested. The screening tests included standard ASTM protocols, and a variety of toxicological and environmental impact reviews. Out of this work came several antimicrobial patents, and Dow Corning brought the most promising products into commercialization, complete with EPA (Environmental Protection Agency) registrations. From the inception of the program, the company has maintained strict confidentiality in regard to the formulation and processing of the technology – preventing competitors from duplicating the quality, safety and efficacy of products that incorporate it.

Scientific Validation

During this timeframe, several validating technical papers by respected chemists and microbiologists outside of the Dow Corning network were published. These peer reviewed works confirmed the quality of the data, the uniqueness of the discovery, and set the stage for Dow Corning to earn Industrial Research magazine’s prestigious IR-100 Award for the groundbreaking technology.

Commercialization and Real World Experience

Commercialization of the Dow Corning technology began in 1976 after the company received EPA registrations. Years of research by both outside laboratories and Dow Corning verified the safety and utility of the technology for direct human contact goods such as textiles. Early on, Burlington’s Bioguard®-brand socks revolutionized the marketing of the technology, providing a real-world consumer application. Consumers have been safely wearing the technology in skin contact applications ever since.

Imitators

By the late 1980s, several companies began to manufacture “me too” products. Although these companies have managed to register similar chemical compounds, they have been unable to match the performance, cross-linking and stability that make the Dow Corning technology so effective. In fact, most of these competitive products can be easily removed from surfaces with everyday household chemicals, and others exhibit stability issues and/or a tendency to discolor the surfaces to which they have been applied.

Creation of Tile Doctor Shield

In 2008, a team of fired ceramics and natural stone experts, led by tile industry veteran Curt Rapp of The Tile Doctor, were introduced to the Dow Corning technology.

In 2009, Silver Cornia, a recognized R&D expert in the tile industry, joined The Tile Doctor team and – over time – perfected the application of the antimicrobial technology for fired ceramics and natural stone. Rigorous testing ensued to ensure efficacy, performance and durability, as well as effects on COF (coefficient of friction) and abrasion. The antimicrobial was also evaluated for eco-friendliness and sustainability. While the technology and its application method have since been arduously refined, Tile Doctor Shield is the same basic product that leading companies continue to regard as the safest, most durable solution available for effective microbial control.

In June of 2009, Tile Doctor Shield received all international regulatory approvals for worldwide distribution. The application of the Dow Corning technology for use on fired ceramics and natural stone surfaces was considered so innovative that, in 2011, it earned the internationally-recognized Edison Award for Best New Product. In 2018, after a lengthy process, the U.S. Patent office granted The Tile Doctor a patent to protect the unique application process.



Representative Microorganisms Tested: A Partial Compendium

Interpretive Note:

Although a list of microorganisms against which a biocide has been shown to be effective is important for determining whether or not the biocide may be used against specific types of organisms, it is only the starting point. Killing or controlling microorganisms (particularly in laboratory tests of the active ingredient) is relatively easy. Safety to humans and the environment, cost-effective use in real world situations, avoidance of the creation of resistant organisms, long-term efficacy, potential damage to treated surfaces, and many other factors are normally much more important.

Moreover, the use of biocides is strictly regulated in the United States. Biocides must be used in strict accordance with EPA-accepted handling and use instructions, and only for those end uses included in EPA-accepted labeling. Misuse of a biocide may be dangerous. It is also illegal.

Tile Doctor Shield is based on a unique antimicrobial technology that is built into hard surfaces and grouting products, effectively controlling bacteria, fungi, algae and yeasts on a wide variety of treated articles and substrates. The antimicrobial active ingredient is registered with the U.S. Environmental Protection Agency (EPA) and comparable regulatory bodies around the world.

The molecular design of the technology has been meticulously field tested. The chain of molecules is precisely formulated for maximum effectiveness and the highest possible durability, and has been used safely for more than 40 years.

The information below has been prepared in response to requests for a list of microorganisms against which the technology is effective. The list includes specific organisms that have been tested against the technology. They were selected to provide a test spectrum that is representative of all significant types and varieties of microorganisms.

These data are provided solely to assist in understanding the capabilities of the technology and are not a warranty. Laboratory testing is performed in a controlled environment and may or may not be representative of real world conditions. Effectiveness against an organism should not be interpreted as eliminating, controlling, minimizing or otherwise affecting health conditions that may be associated with the specific organism.

BACTERIA

Micrococcus sp.
Mycobacterium smegmatis
*Staphylococcus epidermidis*¹
Mycobacterium tuberculosis
*Enterobacter agglomerans*¹
Brucella canis
*Acinetobacter calcoaceticus*¹
Brucella abortus
Staphylococcus aureus (pigmented)¹
Brucella suis
Staphylococcus aureus (non-pigmented)¹
Streptococcus mutans
Klebsiella pneumoniae ATCC 4352
Bacillus subtilis
Pseudomonas aeruginosa
Bacillus cereus
*Pseudomonas aeruginosa*¹
Clostridium perfringens
Clostridium difficile
Pseudomonas aeruginosa PDR-10
Haemophilus influenzae
Streptococcus faecalis
Haemophilus suis
Escherichia coli ATCC 23266
Lactobacillus casei
*Escherichia coli*¹
Leuconostoc lactis
Proteus mirabilis
Listeria monocytogenes
*Proteus mirabilis*¹
Propionibacterium acnes
*Citrobacter diversus*¹
Proteus vulgaris
Salmonella typhosa
Pseudomonas cepacia
Salmonella choleraesuis
Pseudomonas fluorescens
Corynebacterium Boris
Vancomycin Resistant enterococci
Xanthomonas campestris
Methicillin Resistant Staphylococcus aureus

FUNGI

Aspergillus niger
Mucor sp.
Aspergillus fumigatus
Trichophyton mentagrophytes
Aspergillus versicolor
Trichophyton interdigitalis
Aspergillus flavus
Trichoderma flavus
Aspergillus terreus
Chaetomium globosum
Penicillium chrysogenum
Rhizopus nigricans
Penicillium albicans
Cladosporium herbarum
Penicillium citrinum
Aureobasidium pullulans
Penicillium elegans
Fusarium nigrum
Penicillium funiculosum
Fusarium solani
Penicillium humicola
Gliocladium roseum
Penicillium notatum
Oospora lactis
Penicillium variabile
Stachybotrys atra

ALGAE

Oscillatoria borneti LB143
Schenedesmus quadricauda
Anabaena cylindrica B-1446-1C
Gonium sp. LB 9c
Selenastrum gracile B-325
Volvox sp. LB 9
Pleurococcus sp. LB11
Chlorella vulgaris

YEAST

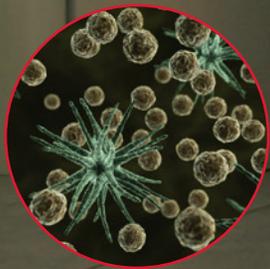
Saccharomyces cerevisiae
Candida albicans

(¹Clinical isolates)

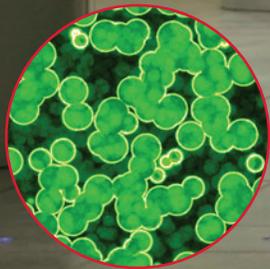
TILE DOCTOR SHIELD



Antimicrobial protection against:



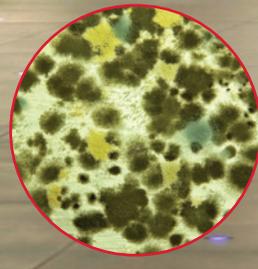
Bacteria



Algae



Fungi



Mold



Mildew

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