

PANARIAgroup®



P R () T E C T®

Antibacterial for Life.

with **MICROBAN**®

english edition

COTTOD'ESTE
Nuove Superfici

LEA
CERAMICHE

LOVE
CERAMIC TILES

MARGRES
CERAMIC TILES

Panaria
ceramica

P R () T E C T[®]

Antibacterial for Life.



GREATER QUALITY IN OUR LIVES

We are increasingly aware of surface hygiene and cleanliness when it comes to all of the choices that we make in our daily lives, starting with those having to do with the spaces in which we live. This is why Panariagroup's research centre has developed **PROTECT[®], an exclusive line of extremely high performance antimicrobial floor and wall tiles**, designed for cleaner, fresher and protected living spaces.

To ultimately live in spaces and on surfaces with absolute freedom and peace of mind.

HEALTHY, SAFE AND PROTECTED ENVIRONMENTS WITH PROTECT®

Research has shown that bacteria can double in number on untreated surfaces every 20 minutes.

How is it possible then to live on surfaces freely, especially flooring?

The solution has arrived thanks to the Panariagroup Research Centre, which has created the PROTECT® line. Besides being beautiful and remarkably resistant, PROTECT® surfaces have been crafted with Microban®, **a proven antimicrobial product protection technology developed by the world leader in the sector.**

Integrated at the stage of manufacture, Microban® helps fight the growth of degrading bacteria on the surface of the tile for its expected lifetime. The result is a surface that stays cleaner and fresher in-between cleans. It is also inherently more durable and unalterable by climatic conditions.

Silver is the base of this patented technology: integrated permanently into PROTECT® products during the industrial firing phase, at over 1200 °C, **making it constantly active, 24-7, day and night, throughout the life cycle of the product.**

When bacteria come in contact with the treated surface, Microban® technology acts by blocking their metabolism; in this way it interrupts the life cycle of bacteria and their ability to grow and reproduce.

This is why the PROTECT® line is your assurance of durable product protection that delivers added peace of mind.

Ag⁺



POWERFUL ACTION

eliminates up to 99.9% of bacteria

The technology used in PROTECT® products, based on silver ions, blocks the metabolism of bacteria and helps prevent their growth and reproduction on the treated surface.



CONTINUOUS PROTECTION

24 hours a day

Unlike other technologies, such as those based on the use of Titanium Dioxide, the protective shield is always active, day and night, with or without sunlight and it does not need UV rays for activation.



ETERNAL EFFECTIVENESS

thanks to technology integrated into the product

Silver ions, permanently integrated into the tile at the moment of firing, are active throughout the life cycle of the product and always guarantee a high level of protection between cleaning operations.



GUARANTEED QUALITY

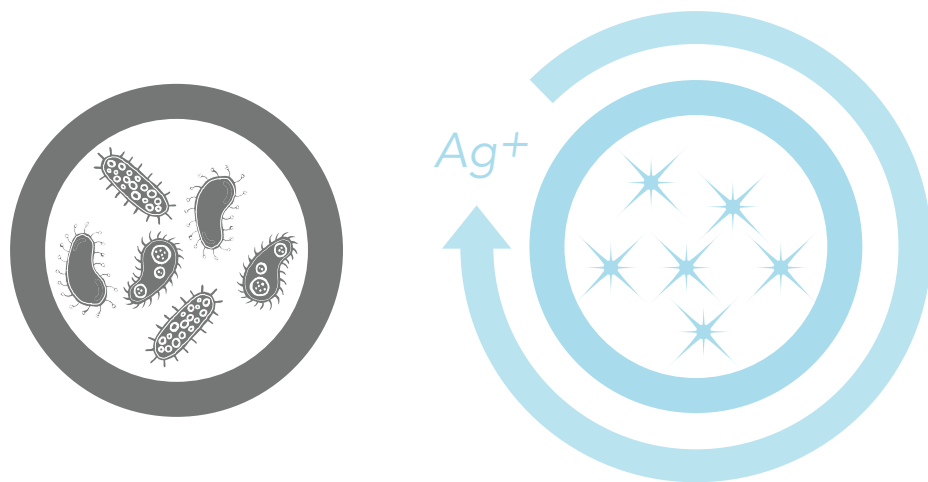
by the partnership with MICROBAN®

PROTECT® is guaranteed by the partnership with Microban®, the world's leading company in the use of antimicrobial technology applied to numerous sectors and products. Furthermore it complies with international safety regulations and it is tested by specialized independent laboratories.

**PROTECT® delivers a true
antimicrobial shield that is incorporated
into the ceramic product.**

THE EFFECTIVENESS OF PROTECT®

Surfaces featuring PROTECT® have a unique advantage, a true antimicrobial shield that eliminates up to 99.9% of surface bacterial growth.



UNPROTECTED
SURFACE

P R () T E C T ®

The silver ions integrated into the product during the firing phase block the metabolism of bacteria, helping prevent their growth and reproduction on the treated surface.



HYGIENICALLY CLEANER AND EASIER TO CLEAN

The level of cleanliness of the product can be visibly improved with PROTECT® antimicrobial technology, and while not a substitute for normal cleaning, it allows complete and easier cleaning, rendering it less expensive and allowing you to reach a better level of product protection in-between cleaning operations.

HELPS ELIMINATE INVISIBLE ENEMIES

Bacteria are invisible, but that doesn't mean they are not proliferating on everyday products and surfaces! Thanks to built-in antimicrobial technology, PROTECT® floor and wall tiles actively inhibit the growth of bacteria on the surface of the tile 24/7.

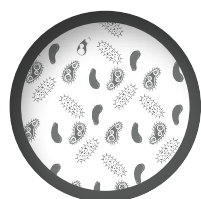
LESS BACTERIA, LESS ODOURS

The presence of bacteria on products can cause odours - just think of the exercise equipment found in gyms. Reduced numbers of bacteria on a PROTECT® surface means a reduced risk of bad odours.

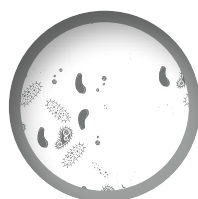
**PROTECT® eliminates up to 99.9%
of bacteria on the surface.**

HOW PROTECT® WORKS

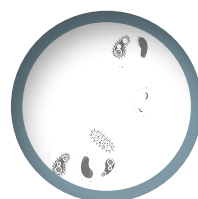
The strong action of PROTECT® works to continuously eliminate up to 99.9% of bacterial growth on surfaces.



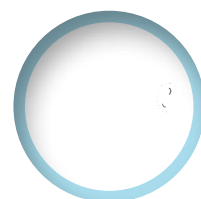
AFTER 2 HOURS



AFTER 16 HOURS



AFTER 20 HOURS

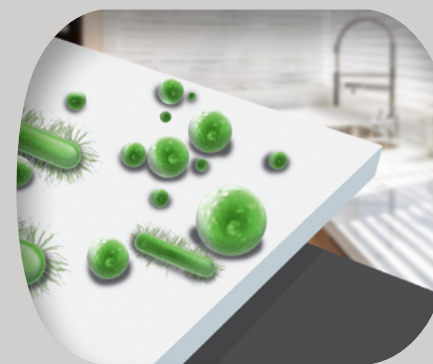


AFTER 24 HOURS



THE PROTECTION IS INTEGRATED INTO THE SURFACE FROM THE START

The technology is integrated in the surface during the firing process, becoming part of the structure of the product.



BACTERIAL CONTAMINATION

The treated surface, after coming into contact with the external environment and/or in the event of inadequate cleaning, can be contaminated by bacteria.



HOW THE TECHNOLOGY ACTS

Thanks to silver ions, PROTECT® technology damages the cellular walls of the bacteria, inhibiting their capacity to grow and reproduce.



THE END RESULT: A CLEANER AND MORE PROTECTED SURFACE

The treated surface benefits from added cleanliness protection in-between cleaning operations by hindering the growth of bacteria, 24 hours a day throughout the life cycle of the product.

ANTIMICROBIAL EVERYWHERE

The continuous antimicrobial action of the PROTECT® line helps to mitigate the degrading effects of biofilms. Biofilms are colonies of bacteria that form a slimy coating on surfaces, making them difficult to clean and potentially compromising the product itself. Biofilms can also impact the colour of a tile and may even facilitate the growth of smelly, unsightly mildew. PROTECT® surfaces are also proven effective against bacteria such as *Escherichia coli*, *Klebsiella pneumoniae* and *Staphylococcus aureus*, which can proliferate on untreated surfaces.

PROTECT® ANTIMICROBIAL SURFACES ARE RECOMMENDED FOR DOMESTIC ENVIRONMENTS BUT ALSO:



RESTAURANTS, CANTEENS,
COUNTERTOPS
FOR KITCHENS



HEALTHCARE
ENVIRONMENTS,
MEDICAL CLINICS



GYMS, SPAS,
HEALTH CLUBS



AIRPORTS, SHOPPING
CENTRES, SCHOOLS

EVERY PRODUCT CAN BE PROTECT®

The antimicrobial technology can be integrated into all types of products, formats, surfaces, finishes, including polished ones and also custom made products. Also, unlike other technologies, it does not whiten the surface in which it is incorporated.

PROTECT® is standard on almost all of the collections of Panariagroup's main brands.

PROTECT® SURFACES ARE IDEAL ...

in houses,
kindergardens,
games rooms,
nurseries,
playrooms.



in schools,
theatres, creative
workshops,
sharing spaces.



for workplaces,
but also for
high-traffic-areas,
shopping centers,
hospitals,
train stations,
airports,
sport centers.



in gyms, saunas,
changing rooms,
yoga and pilates
centres, massage
parlours.



PROTECT® GALLERY

Thanks to its PROTECT® antibacterial tiles Panariagroup has developed top quality projects around the world.



Headquarter e-commerce / ITALY



Headquarter Ugolini SPA / ITALY



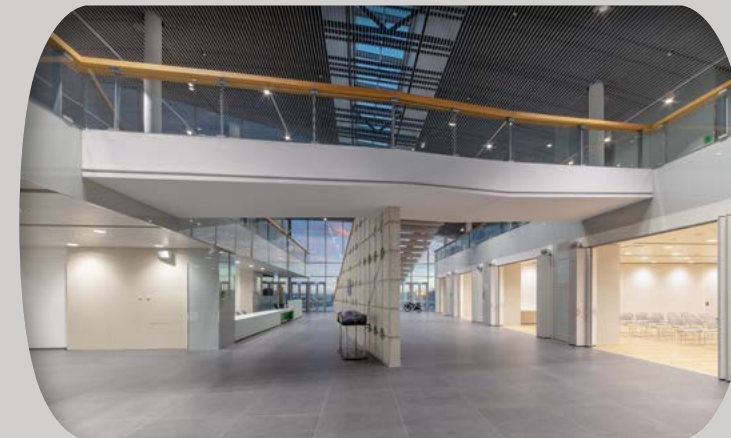
Ospedale dei Bambini Pietro Barilla / ITALY



Bupa Cromwell Hospital / ENGLAND



Fondazione Prada / ITALY



Zalaegerszeg Test Track / HUNGARY



Private Residence / SPAIN



Private Residence / CZECH REPUBLIC



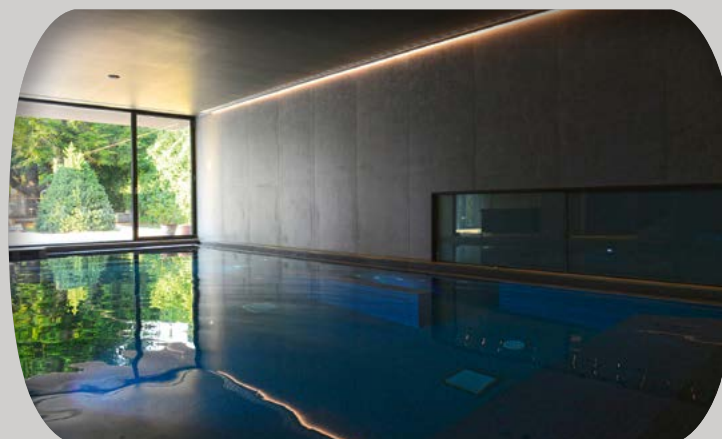
Leonardo Da Vinci Airport - Terminal 3 / ITALY



Changi Airport - Terminal 4 / SINGAPORE



Idyllic Concept Resort / THAILAND



Atlantic Park Hotel / ITALY



Restaurant Briscola Pizza Society / ITALY



Restaurant Attimi Heinz Beck / ITALY

THE STRENGTH OF A WORLDWIDE LEADING PARTNER: MICROBAN®

Panariagroup has chosen to develop PROTECT® products together with **Microban®, the world's leading antimicrobial technology brand.**

Thanks to its global approach, Microban® technology is known and appreciated by more than 250 brands worldwide and used in more than 1000 products, not only in construction but also in commercial and consumer goods.

Microban®, which has been operating for over 35 years, has managed to establish itself as a world leader through painstaking research and constant innovation. The company's areas of operation have been extended into all sectors which benefit from built-in antimicrobial solutions, like bathroom and kitchen accessories, sinks and toilets. But that's not all: even in the commercial sector, wherever there is a proliferation of micro-organisms on surfaces, Microban® is able to intervene effectively, helping to create cleaner, more durable products that are protected from premature degradation and bad odours caused by bacteria.

There are numerous types of objects and materials that can benefit from this technology: changing tables, food storage containers, elevators, mattresses, professional cleaning equipment and much more.



MICROBAN®

IS USED BY:

RUBBERMAID

WHIRLPOOL

GE APPLIANCES

SAMSONITE

REEBOK

CONTINENTAL CONTITECH

LATICRETE

and many others

ALWAYS A STEP AHEAD

PANARIAgroup®

The need to create cleaner, protected spaces in which to live, work, and spend free time has been a priority for Panariagroup since 2010 and led to the partnership with Microban®, aimed at creating the highest quality antimicrobial flooring and cladding.

Since then **Panariagroup**, through its own brands and its own commercial divisions, has supplied over 20 million square meters of PROTECT® antimicrobial products, thus significantly contributing to making residential, commercial, and public spaces around the world cleaner and more hygienic.

This is further proof of our ability to look ahead and to lead the way when it comes to innovative products and technology, as was the case, for example, with the introduction of ultra-thin laminated porcelain stoneware (Panariagroup was the first ceramic group to launch it on the market in 2004).

PROTECT® is yet another milestone for our research centre, which managed to successfully integrate in our ceramic products the cutting-edge Microban® technology.



PROTECT® is an exclusive technology that is standard in almost all of the collections of Panariagroup's main brands.



PANARIAGROUP THE RESEARCH

Research and Development is at the core of Panariagroup that, over the years, has developed into one of the groups at the forefront of the industry. Panariagroup has established an important Research Centre made of highly qualified personnel: technicians, engineers, architects and researchers. Every day, they study new solutions to successfully compete in the field of floor and wall tiles, thus maintaining the position of market leader.

MICROBAN® TECHNOLOGY.

COMPLIANCE WITH SAFETY REGULATIONS

The use of Microban® antimicrobial technologies for Panariagroup PROTECT® porcelain stoneware and laminated porcelain stoneware tiles is in full compliance with global regulatory bodies which govern the production applications and uses adopted by the market.

In the United States, the Environmental Protection Agency (EPA) has regulatory jurisdiction and in the EU, the biocidal active components of Microban® antimicrobial additives are notified in accordance with the Biocidal Products Regulation (BPR) No. 528/2012 for the relevant product types in accordance with their end use application.

The Microban® additive used in Panariagroup PROTECT® ceramic tile products is compliant with the Food Contact Materials Framework Regulation (EC) No. 1935/2004 for direct food-contact.

The active ingredient is also registered with the EPA (Environmental Protection Agency) and FDA (Food and Drug Administration) in the United States.

THOROUGHLY TESTED APPLICATIONS

To substantiate the antimicrobial claims, Panariagroup and Microban® also use external independent laboratories which are highly specialized at carrying out ISO 22196 or ASTM E3031-15 testing, such as IMSL (Industrial Microbiological Services Limited) in the UK.

FREE TO FEEL GOOD

Microban® silver ion based technology, integrated into PROTECT® antimicrobial surfaces, has a powerful action against bacteria but has no harmful effect on the environment nor on human health and well-being.



**Every new collection is tested
by acknowledged external international
laboratories to officially certify
antimicrobial activity.**



CERAMIC. A SAFE CHOICE.



PANARIAGROUP CERAMICS AT THEIR BEST

Ceramics offer unique and outstanding performance.

SAFE
HYGIENIC
LONG-LASTING
IT DOES NOT BURN
RESISTANT

VERSATILE
STABLE
RECYCLABLE
ENVIRONMENT- FRIENDLY
ZERO VOCs

Panariagroup stands out for its superior quality products.

HEALTHIER

thanks to the integrated
PROTECT® antimicrobial te-
chnology.

EASIER TO CLEAN

thanks to our exclusive surface
processing techniques.

MORE VERSATILE AND SUITABLE FOR EVERY USE

thanks to the wide availability
of high-performance techno-
logies and components that
allow you to obtain products
suitable for different uses.

MORE SUSTAINABLE

thanks to a production process
that is extremely efficient
in terms of compliance with
environmental standards and
consumption of water, energy
and raw materials.



Bosco Verticale, Porta Nuova - Milano
Development and Property - COIMA, Interior Design - COIMA Image
Made with Panariagroup products

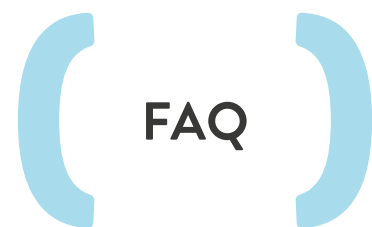
PANARIAGROUP BEAUTY INNOVATION SUSTAINABILITY

Panariagroup is a world leader in high quality ceramic surfaces for floor and wall coverings. Its production processes respect the environment and its products are designed for a new way of conceiving architecture and living.

To find out more about Panariagroup's commitment and specific initiatives, you can refer to the Sustainability Report, which can be downloaded here at panariagroup.it or requested via email at sustainability@panariagroup.it

Panariagroup manufacturing processes and products have obtained the most prestigious international certifications:





1. What is silver-based antimicrobial technology?

PROTECT® products are made with Microban®, an active antimicrobial 'ingredient' that can be added to a wide range of consumer, industrial and medical products to help prevent the growth of bacteria on the surface of the item. As it is integrated at the point of manufacture, Microban® delivers enduring surface protection for the lifetime of the product. The technology developed by Microban® and Panariagroup in PROTECT® porcelain tiles and slabs is silver-based.

2. Is the SilverShield® antimicrobial technology in PROTECT® line products always active?

Yes - The silver antimicrobial technology developed for porcelain stoneware and laminated porcelain stoneware products from the PROTECT® line, offers antimicrobial product protection constantly, day and night, 24 hours a day, with and without the need for sunlight. Unlike other technologies, it does not need UV light to be effective.

3. Can the antimicrobial technology be applied to tiles of any colour?

Yes - Microban® silver antimicrobial technology does not alter or whiten the original colour of the ceramic surface (unlike other technologies), and can therefore be applied onto any coloured tiles and slabs, even the darker ones.

4. Which micro-organisms is Microban® technology effective against?

The Microban® antimicrobial additive integrated into PROTECT® products has been proven effective against a range of gram positive and gram negative bacteria including *Escherichia coli*, *Staphylococcus aureus* and *Klebsiella pneumoniae*.

5. Is the action of Microban® antimicrobial technology permanent on PROTECT® tile surfaces?

Yes - The Microban® protection developed for Panariagroup is not an organic based treatment

applied to finished products (such as in the case of waxes or resins), but is permanently integrated into the tile during the industrial firing process. Therefore, it can't be washed away or consumed.

6. Does this protection begin working immediately?

Yes - The integrated technology in PROTECT® line products is always active. As soon as bacteria come into contact with the treated surface, the antimicrobial protection developed with Microban® works to disrupt their vital life processes and biological functions, meaning they cannot grow or reproduce. The result is a tile surface that stays cleaner and fresher in-between cleaning.

7. Does this protection wear off over time?

No - Microban® active ingredients are incorporated into PROTECT® line of products during the manufacturing process. Evenly distributed throughout the surface this technology actively protects the entire surface area throughout the entire lifecycle of the product.

8. What is the main advantage provided by the antimicrobial protection in PROTECT® products?

This technology, together with regular cleaning operations, contributes to improved levels of surface cleanliness, freshness and durability. This protection provides a continuous action against the growth of bacteria that can cause biofilms, bad odours and staining.

9. Is this protection safe?

Yes - Microban® antimicrobial technology used in PROTECT® line products has a long history of safe use. In addition, this technology is used in various industrial, consumer and healthcare products such as water filters, stationary and much more. The active Microban® antimicrobial protection used in PROTECT® tile surfaces is notified in Europe in accordance with the Biocidal Products Regulation (BPR) No. 528/2012

and has undergone extensive independent laboratory testing. It is also registered with the US Environmental Protection Agency (EPA).

10. Are ceramic surfaces naturally resistant to bacteria?

No - Even though many ceramic tiles have a non-porous surface, which provides an important benefit in keeping bacteria from penetrating, bacteria can still multiply and grow on the surface. As Microban® antimicrobial technology is integrated into PROTECT® products, it helps prevent the growth of bacteria on the tile surface, where it is most needed.

11. Do PROTECT® products need to be cleaned?

Yes - The built-in antimicrobial product protection is not a substitute for a thorough cleaning routine. This silver-based technology provides an added level of surface protection against degrading bacterial growth.

12. Is it necessary to follow particular precautions when installing products from the PROTECT® line?

No - These products are installed in the same manner as normal tiles, following the procedures in force in various countries and described in Panariagroup installation guidelines and Technical Manuals.

13. Is it easy to clean PROTECT® line products?

Yes, cleaning PROTECT® line items is easy, as indicated in the general catalogue. As the action of the active agents of Microban® happens on the surface of the tile, it is important not to use any cleaning products that create a film that would block the contact between the tile and the bacteria. During cleaning and maintenance activities, do not use detergents containing wax or that create films on the surface and do not apply resin, wax, protective substances, etc.

14. How does this protection differ from that

of disinfectants?

Detergents and disinfectants are an immediate but short term solution. They offer a very limited residual activity after the drying of the treated surface. Bacteria can then very quickly start to grow and reproduce once the surface becomes recontaminated. On the other hand, Microban® antimicrobial additives, integrated in PROTECT® products, guarantee long lasting surface protection, continuously working to prevent the growth of bacteria everyday, in-between cleaning and throughout the entire lifecycle of the product.

15. Can antimicrobial tiles contribute to generate resistant strains of bacteria?

Dangers from resistant strains of bacteria are primarily related to antibiotic resistance in which bacteria no longer respond to a specific antibiotic. The Microban® antimicrobial additives designed for the ceramic tiles and slabs of the PROTECT® line are not antibiotic. They have multiple targets and modes of action on the bacteria (unlike the majority of antibiotics which are target specific). This reduces the risk of potential resistant strain development.

For further information and to download the attachments related to the PROTECT® line, visit the website protect.panariagroup.it



INFORMATION FOR DESIGNERS AND BUILDING SUPERVISORS

Data for tender specifications, Panariagroup PROTECT® ceramic surfaces:

Porcelain stoneware tiles and slabs with a high "antimicrobial" activity, capable of reducing up to 99.9% of *Escherichia coli*, *Klebsiella pneumoniae* and *Staphylococcus Aureus* bacteria (ISO 22196 or ASTM E3031-15 standards) thanks to the action of Microban® silver-based, integrated technology registered under the European Biocidal Products Regulation (BPR) No. 528/2012.

Porcelain stoneware tiles and slabs with antimicrobial properties:

- active day and night, 24 hours a day;
- active both in light and dark conditions, with no need to use UV lamps;
- active on the surface of the material;
- permanent, integrated into the surface during industrial firing at a temperature of 1200 °C (It is not a surface treatment applied after firing);
- active over time, resistant to wear, lasting for the lifetime of the tiles, it is permanent and does not need to be retreated over the lifecycle of the product.

"Antimicrobial" porcelain stoneware tiles and slabs available in:

- all colours of the collection, even the darkest (Microban® technology integrated in PROTECT® products does not "whiten" dark colours)
- natural, honed (lappata) and polished (levigata) finishes.

"Antimicrobial" porcelain stoneware tiles and slabs, ideal for any environment, especially those that call for a high standard of hygiene and cleanability, such as:

- hotels, restaurants, canteens,
- hospitals, operating theatres,
- wellness centres, spas, swimming pools, gyms, showers,
- retirement homes, schools, nursery schools,
- agricultural and food industries, slaughterhouses,
- public areas and offices,
- public and private kitchens and bathrooms.

LEED Buildings

PROTECT® tiles with Microban® technology manufactured by Panariagroup contribute to obtaining LEED credits for the ID section - Innovation & Design Process (ref. LEED V4 for Building Design and Construction).

Antimicrobial grouts

There are antimicrobial grout products available to both the consumer and trade market, to ensure protection on the entire surface.

Information for installation and cleaning

PROTECT® products are installed in the same manner as other tiles, following the procedures in force in various countries and described in the installation rules and technical manuals of Panariagroup laminated porcelain stoneware.

For information about cleaning and maintenance of Panariagroup PROTECT® porcelain stoneware and laminated porcelain stoneware, refer to the instructions given in the general catalogues and instruction manuals.

Since the antimicrobial action of Microban® active principles is exerted on the surface of the tile, it is important to prevent films of any kind from forming on the surface since these may prevent contact between bacteria and the ceramic tile. During cleaning and maintenance activities, do not use detergents containing wax or that create films on the surface, rinse thoroughly and do not apply resin, wax, protective substances, etc.

GLOSSARY

Bacterium

Single-celled microscopic organisms that lack nuclei and other organized cell structures. "Bacteria" is the plural form of "bacterium." While several bacterial species are pathogenic (capable of causing disease), many are non-infectious.

Microorganism

An individual form of life that is capable of growing, metabolising nutrients, and reproducing. Organisms can be unicellular or multicellular. They are scientifically divided into five different groups that include prokaryotes, protists, fungi, plants, and animals. A microorganism is an organism of microscopic or sub-microscopic size, such as a bacterium.

Cross contamination

Transmission of microorganisms from contaminated materials, surfaces, articles or humans to non-contaminated materials, surfaces etc.

DNA

Deoxyribonucleic acid. A nucleic acid that carries the genetic information in the cell and is capable of self-replication.

Ag Ion (silver ion)

A silver ion is a silver atom which has lost one electron and therefore carries a positive charge.

Active substance as defined by the Biocidal Products Regulation

A substance or micro-organism that has an action on or against harmful organisms.

Biocidal Product

Active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means.

Biocide

This is an active substance or biocidal product as defined by the Biocidal Products Regulation.

Biofilm

Communities of microorganisms attached to a surface. Microorganisms undergo profound changes during their transition from planktonic (free-swimming) organisms to cells that are part of a complex, surface-attached community.

Gram-positive bacteria

These are able to be stained with a special violet / blue stain and therefore show up under the microscope.

Gram-negative bacteria

These bacteria do not retain the violet / blue stain and need to be stained with a special counterstain, which gives them a pink / red colouration under the microscope.

Escherichia coli

E. coli are a consistent inhabitant of the human intestinal tract. Pathogenic strains of *E. coli* can be responsible for urinary tract infections, intestinal diseases such as gastroenteritis and neonatal meningitis. *E. coli* serve as an indicator of faecal contamination of water and can also be found outside the body in contaminated water environments.

Staphylococcus aureus

S. aureus are Gram-positive spherical bacteria which occur in microscopic irregular clusters resembling grapes. *S. aureus* mainly colonises human nasal passages but can also be found on the skin, mucous membranes such as in the oral cavity and the gastrointestinal tract. They can also be found in soil. *S. aureus* can cause surgical infection and skin infections. They can also cause skin lesions such as boils and styes and more serious infections such as pneumonia and urinary tract infections.

Klebsiella pneumoniae

K. pneumoniae are Gram-negative rod shaped bacteria. They belong to the normal intestinal flora of man. Most frequent *K. pneumoniae* infections include lower respiratory tract and catheter-associated urinary tract infections.

Microban® antimicrobial technologies are not designed to protect the users of these products or others against disease-causing microorganisms or viruses. Normal cleaning and hygiene practices should be maintained.

PROTECT® ceramic tiles featuring Microban® technology contain the active ingredient silver phosphate glass.

Microban® is a registered trademark of Microban Products Company.

Panariagroup Industrie Ceramiche S.p.A.

Headquarters:

Via Cameazzo, 21 - 41042 Fiorano Modenese (MO) - Italy

Tel. +39 0536 915 211 - Fax +39 0536 915 221

Photos Maria Teresa Furnari

October 2020

