


HEXIS ANTIMICROBIAL FILM  
**PURE ZONE**®  
Performance and protection anywhere, anytime

**PURE ZONE**®  
Antimicrobial protection



[www.hexishealth.com](http://www.hexishealth.com)



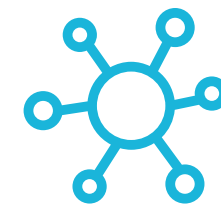
# THE NEW ANTIMICROBIAL FILM BY HEXIS

## YOUR PREMISES 24/7



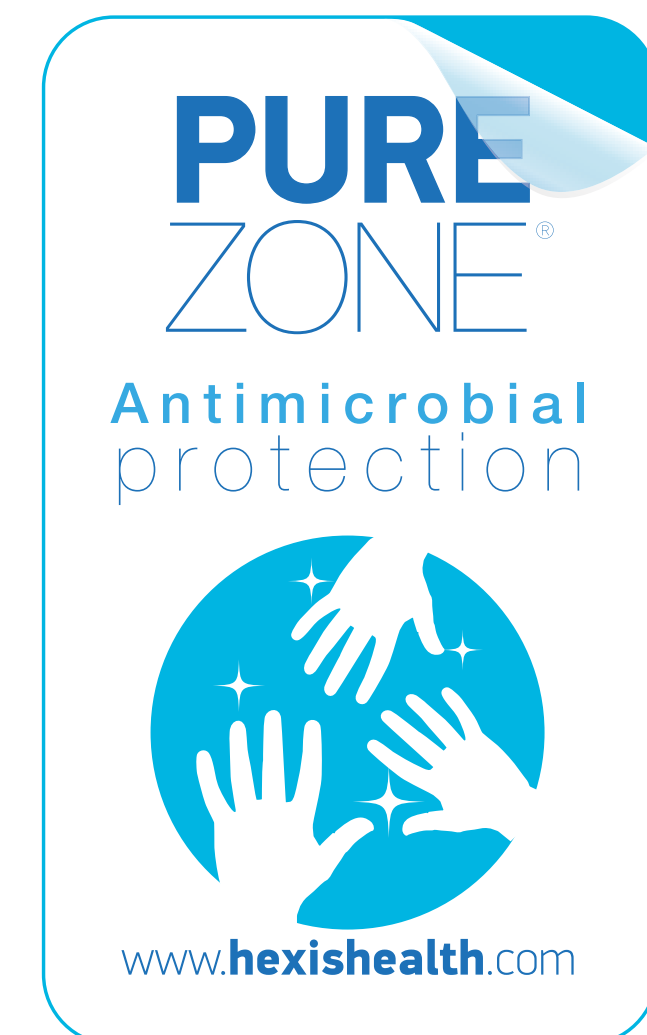
→ **YOU COMPLY WITH THE GOOD HYGIENE PRACTICE (GHP) AND YOU WISH YOUR ENVIRONMENT TO BE :**

- 01.** Perfectly maintained
- 02.** Regularly cleaned
- 03.** Covered with waterproof, smooth and easy to wash materials



→ **HOWEVER, HAZARD SHALL DEVELOP BETWEEN 2 CLEANING PHASES**

- 01.** A biofilm may form
- 02.** Germs may spread



# BIOFILM = DANGER

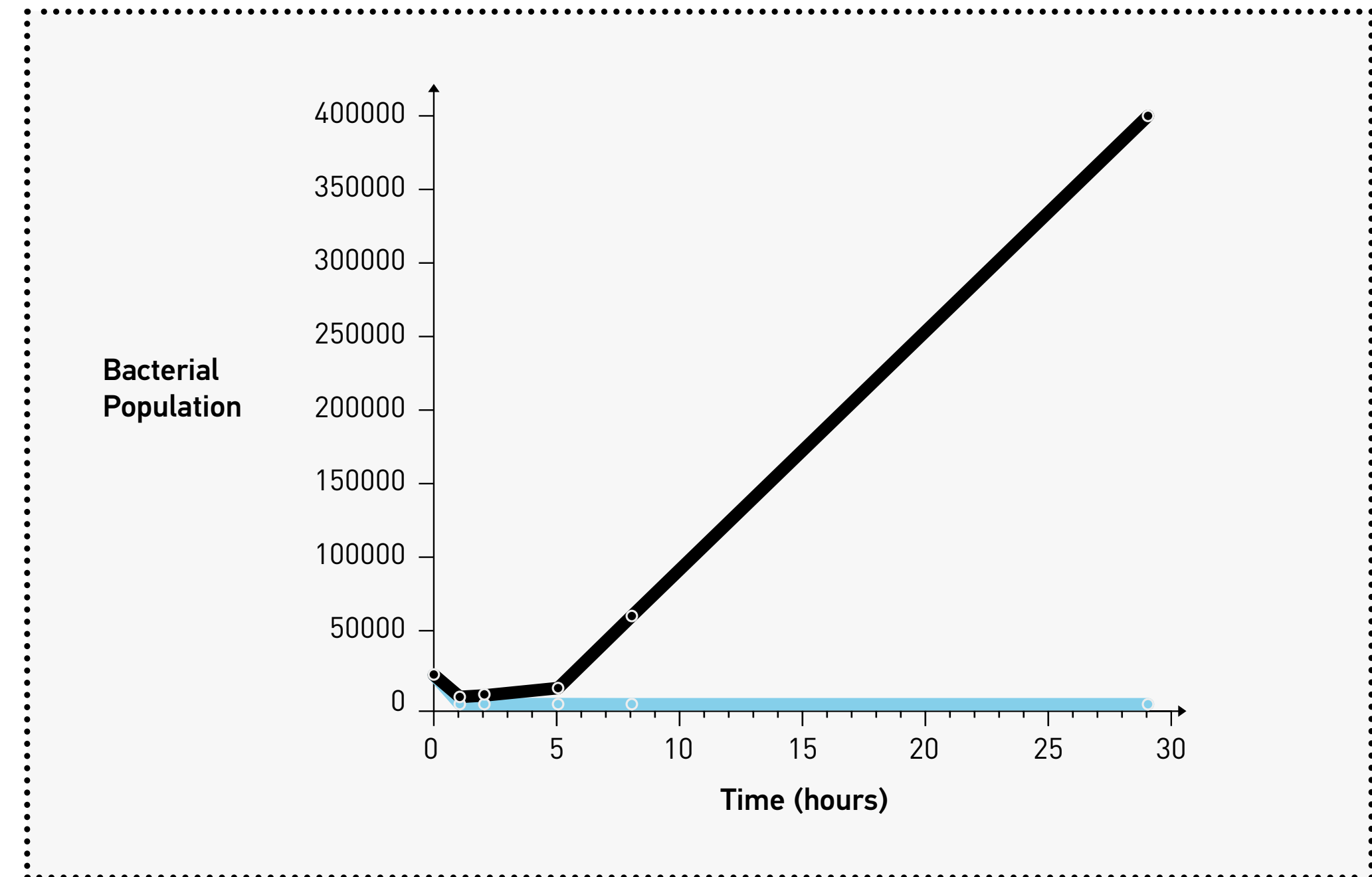


→ **BIOFILM IS COMPOSED OF MICRO-ORGANISMS AND A MUCOUS LAYER THAT REQUIRES A MECHANICAL CLEANING ACTION.**



→ **MANAGING BIOFILM REQUIRES :**

- 01. Reducing the microbial load** through intensive cleaning in order to eliminate dormant bacteria
- 02. Preventing the biofilm from reforming** (with silver ions that destroy the so-called solitary, free-floating planktonic bacteria, for instance)



**HOW A BACTERIAL POPULATION GROWS**

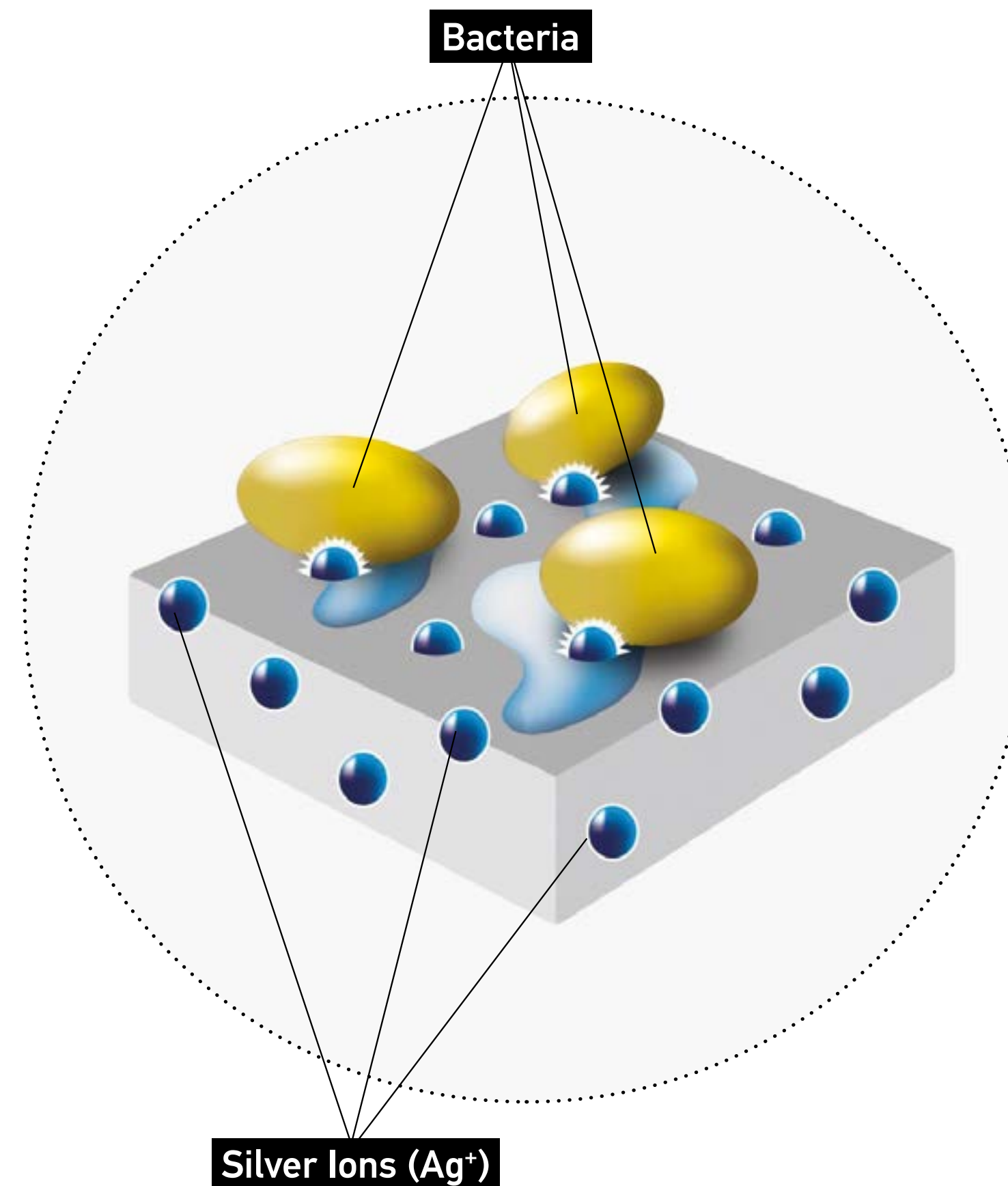
- without PURE ZONE®
- with PURE ZONE®

# THE HEXIS ANTIMICROBIAL FILM



→ **GERMS NEED HUMIDITY TO PROLIFERATE. THE HEXIS FILM IS WATERPROOF AND FORMS A BARRIER AGAINST HUMIDITY.**

When the PVC film is manufactured by HEXIS, silver ions encapsulated in a glass matrix are distributed over the film in a uniform manner.

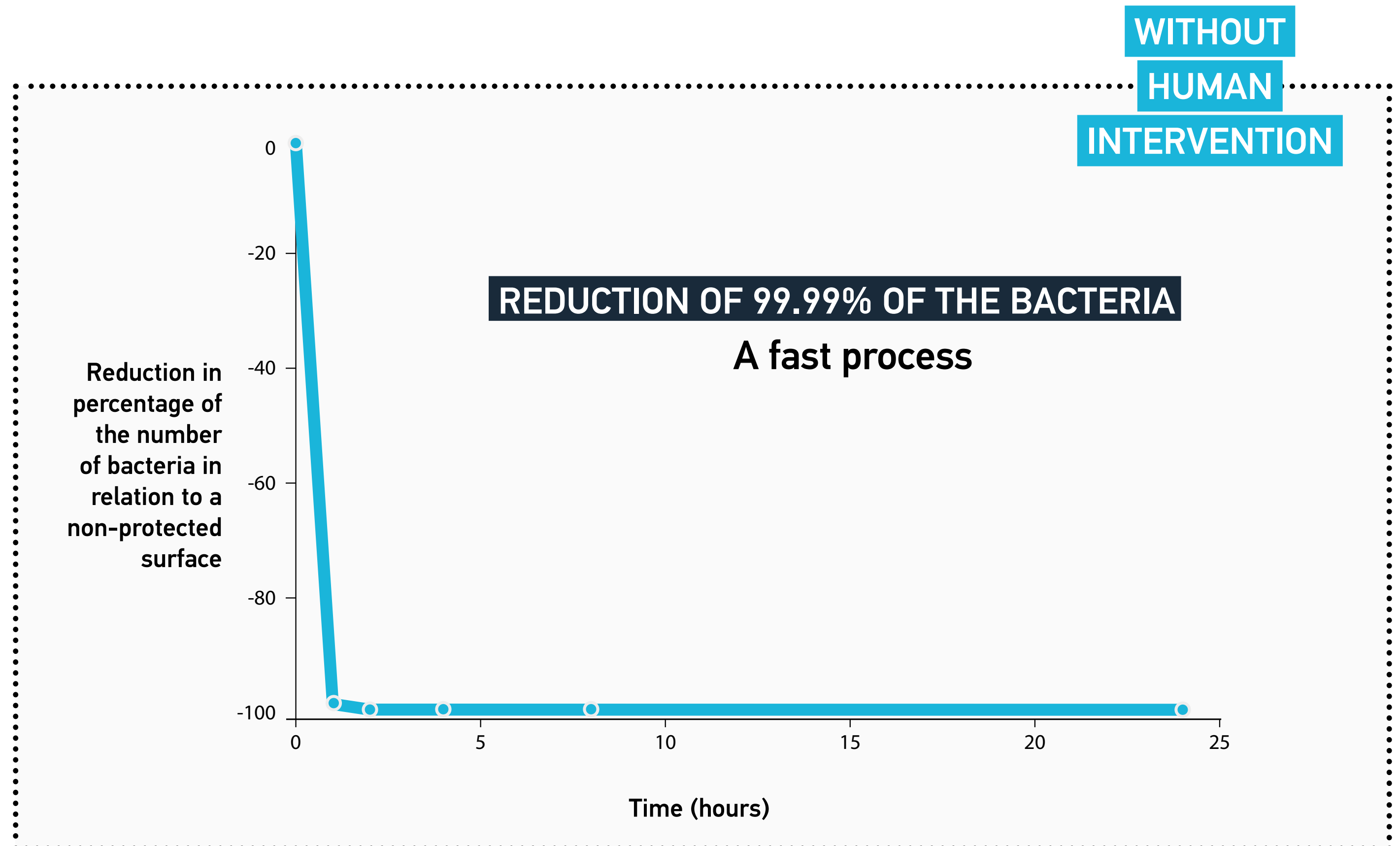


→ **THIS IS A DECISIVE INNOVATION**

- 01.** During cleaning operations, as well as in the presence of humidity, silver ions are released from the top layer of the film.
- 02.** These ions come into contact with the bacteria, blocking their metabolism and/or interrupting their proliferation mechanism, leading to their destruction

# THE ANTI-MICROBIAL EFFICIENCY OF SILVER IONS

- 01.** Protects 24h a day, 7 days a week, and thus between 2 cleaning phases
- 02.** Protects **inaccessible areas**
- 03.** Inhibits the development of **99.99% of the germs tested** (tests in conformity with the ISO 22196 standard)
- 04.** Reduces a bacterial population by **4 logs**
- 05.** Prevents the formation of **biofilm**
- 06.** Active for **5 years**
- 07.** Perfectly **ecological**
- 08.** No nanoparticles



# PROOF FROM TESTS



## → ANTIMICROBIAL ACTION

### 01. Fast

Rapid penetration into the bacterial cell.

### 02. Powerfull

Active even at very low concentrations.

### 03. Prolonged

24 a day - 7 days a week for several years.

## → THE HEXIS FILM CAN BE APPLIED EVERYWHERE

The tested product is “NON-IRRITANT”  
Safe for use on human skin.

## The activity of the HEXIS antimicrobial film

Strain	Reduction in bacteria as a %	Logarithmic decrease
<i>Salmonella enterica subsp enterica</i>	99,99	> 4,6
<i>Listeria monocytogenes</i>	99,99	> 4,2
<i>Staphylococcus aureus</i>	99,99	> 4,1
<i>Escherichia coli</i>	99,99	> 4,5
MRSA	99,99	> 3,5
<i>P.aeruginosa</i>	99,99	> 5,7

N.B. The logarithmic reductions obtained with silver ions may differ depending on the techniques used and in relation to the incubation periods and milieus used.

## IN YOUR PREMISES, THE SAME TECHNIQUE, THE SAME ADVANTAGES



→ **HEXIS ADHESIVE FILMS ARE USED ON TRAINS, UNDERGROUNDS, PLANES, AND ARE THUS EXPOSED TO SIGNIFICANT CONSTRAINTS**

- 01.** Strong adhesion
- 02.** Easy to clean
- 03.** Waterproof
- 04.** Conformable

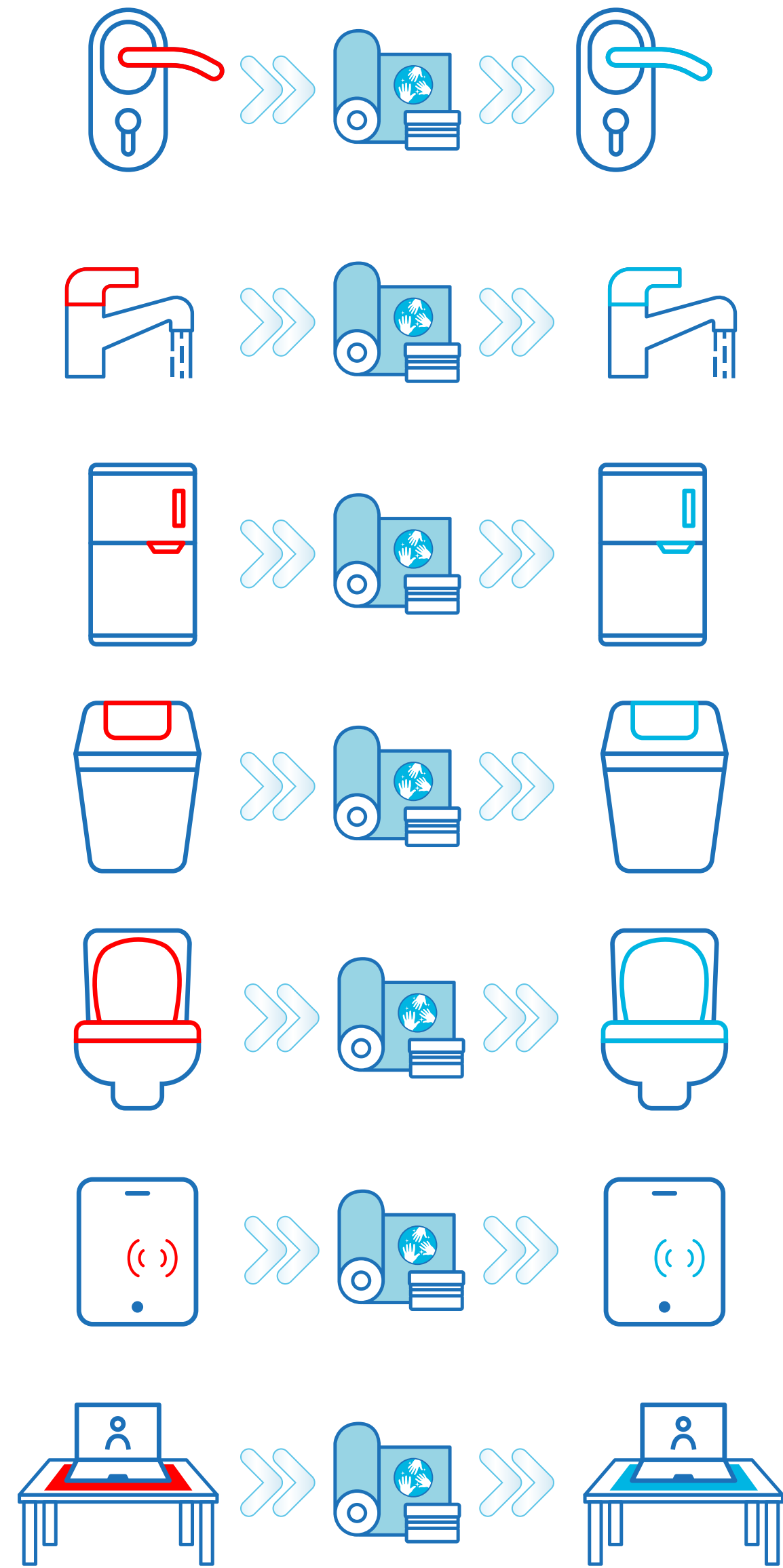


## HEXIS PVC ADHESIVE FILMS

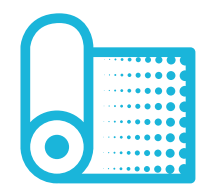
- 01.** Smooth and sleek,  
**so easy to clean**
- 02.** Perfectly **waterproof**
- 03.** **Easy to apply, without disrupting your organisation,**  
all substrates, constructions, insulated panels, sandwich panels, etc.
- 04.** In all **areas subject to health constraints:** clean rooms, white rooms, cold stores
- 05.** **Compatible with your cleaning protocols.**  
Resistant to most chemical agents, alcohol, diluted acids, oils
- 06.** The films have an acrylic adhesive which is pressure sensitive.  
**Adhesion is immediate,** and permanent after 24h of contact
- 07.** **Manufactured in France at the HEXIS factory**
- 08.** **Brevet international HEXIS**







# ANTIMICROBIAL SOLUTIONS FOR DECORATION



## → PURE ZONE® FILM 4 FINISHES

### 01. PURZONE060B

Gloss finish

### 02. PURZONE060M

Matt finish

### 03. PCAPMGB

Leather grain

### 04. PCWOOD

Wood grain

## → PURE ZONE® FILM CAN BE USED :

01. to protect a simple surface

02. to protect a printed graphic design



# ANTIMICROBIAL SOLUTIONS FOR DECORATION

→ **PURE ZONE® FILMS CAN BE APPLIED ON MANY SUBSTRATES**



→ **YOU ONLY HAVE TO CHOOSE**

**01. your printable film**

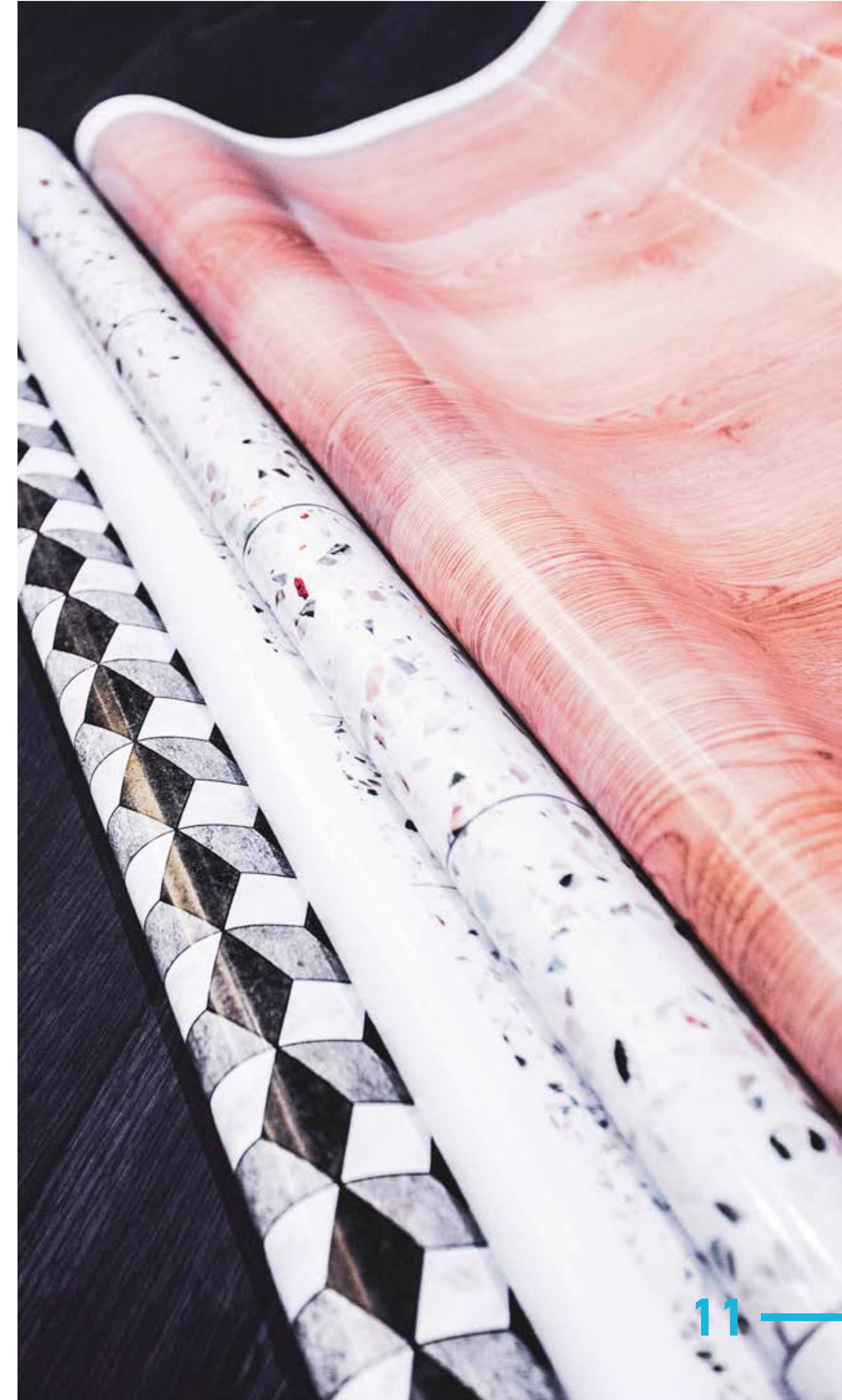
2D, 3D  
Short to long term  
Type of adhesive depending on substrate

**02. The PURE ZONE® finish and your design**

HEXIS offer lots of texture on:  
[hexperience.hexis-graphics.com](http://hexperience.hexis-graphics.com)

**03. Your laminate**

Leather grain, wood grain, gloss or matt



# GLOSSARY

## MICROBE

It is a living organism that is not visible to the naked eye. In this family there are bacteria, fungi, yeasts, molds but also viruses.

## BACTERIA

Micro-organisms characterized by the absence of a cell nucleus. They spread by cell division, at a speed that may vary depending on the environment. They are characterized by their cellular membrane (Gram-positive or Gram-negative) as well as their shape (coccus or bacillus).

## FUNGI/YEASTS/MOLDS

Still single- or multiple-cell living organisms that absorb organic molecules directly into the environment they are.

## VIRUS

Microorganism that requires the presence of a host cell to reproduce. Smaller in size than other microbes.

## BACTERICID

Molecule or substance is called bactericide when it has the ability to kill bacteria. This is characterized by a 99.999% reduction (or log 5) of bacterial load according to ISO 22196.

## BACTERIOSTATIC

Molecule or substance is called bactericidal when it has the ability to kill bacteria. This is characterized by a reduction of 99% (or log 2) to 99.999 % (log5) of bacterial load according to ISO 22196.

## BIOCIDE

Any substance or mixture, in the form in which it is delivered to the user, consisting of one or more active substances, containing or producing, which is intended to destroy, repel or turn harmful organisms to be harmless, to prevent their action or to fight them in any other way than a simple physical or mechanical action. These products are managed by EU Directive 98/8/EC of 16 February 1998 replaced in 2012 by a regulation.



## **PATHOGEN**

A pathogenic agent is a factor (chemical molecule or organism) than can lead to an injury or cause a disease.

## **NOSOCOMIAL**

A nosocomial infection is an infection contracted in a health facility. It is defined as any infection that occurs during or following patient care process (diagnostic, therapeutic or preventive act) provided that the infection is neither present nor incubating at the time of patient care process (a 48-hours delay after hospitalization is usually admitted).

## **SILVER SALT**

Neutral chemical molecule consisting of a positive silver ion and a negative counter-ion (eg silver nitrate  $Ag^+ No_3^-$ ).

## **SILVER ION**

Oxidized form of metallic silver (always associated with a counter-ion) and which under this state has biocide properties on microbes.

## **HOW THE BIOCIDES ARE ACTING IN THE FILM**

Active agent disrupts the wall of the bacteria. It then penetrates the cell, binds to a protein and disrupts energy production, enzyme functions and cell duplication phenomena. This is acting by contact. The bacterium does not die, but its spread is greatly reduced. There is no biocide emission in the surrounding atmosphere.

## **SURFACE EFFICIENCY KINETICS**

After one hour of contact (following Iso 22196), 99% of Salmonella bacteria were destroyed.

## **FILM CLEANING**

No decrease of the activity after 365 cleaning operations with water, ethanol, bleach or «ANIOSURF»

## **ESCHERICHIA COLI**

Gram- bacteria, found in mammals. They represent 80 % of human's intestinal flora. It can cause diarrhea, urinary and gastric infections, meningitis, septicaemia.

## **STAPHYLOCOCCUS AUREUS**

Gram+ bacteria, found in humans, in the nasal cavity or throat. It can cause food poisoning, skin infections (pus production). An untreated infection, or if on an immunosuppressed patient, can lead to septicaemia, that might be fatal.



### **METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)**

Gram- bacteria; it is a specific strain of *S. Aureus* that has developed resistance to an antibiotic (methicillin), and is therefore more difficult to control.

It is part of the multi-resistant bacteria (MRB). It can cause infections and septicaemia, which are more serious and therefore there is a higher mortality than with ordinary staphylococcus aureus.

### **LISTERIA**

Gram+. The human contamination comes mainly from food (poorly washed fruits, undercooked meats...). It can cause listeriosis (more or less severe symptoms: fevers, headaches, meningitis, septicaemia...), especially among fragile people (eg pregnant women)

### **SALMONELLA**

Gram+. This bacterium is able to colonize food manufacturing premises and its vector is therefore food. It can cause gastroenteritis, food infections, septicaemia, meningitis (infants) and typhoid fevers.

### **PSEUDOMONAS AERUGINOSA**

Gram- . They are one of the most resistant and difficult bacteria to handle. They have a strong ability to form biofilms. They can cause eye infections, sores, urinary, intestinal and lung infections; septicaemia for immunosuppressed patients, as well.

### **BIOFILM**

(multi)-bacterial layer organized and aggregated on a surface, resistant to certain cleaning and disinfection protocols. This is the next step after bacterial colonization.

### **METHICILLIN**

Discovered in 1959, it is a  $\beta$ -lactamine type antibiotic, belonging to penicillase-resistant penicillins' group.

### **ANTIBIOTIC**

An antibiotic (from ancient Greek anti: «against,» and bios: «life») is a natural or synthetic substance that destroys or blocks the growth of bacteria. In the first case, it is called a bactericidal antibiotic and in the second case a bacteriostatic antibiotic.



### **GRAM+AND GRAM-**

GRAM test consists of coloring the membrane. If the bacterium has a thick membrane, a coloration appears and the bacteria is called gram+. If no coloration is visible on the bacterium, it is called Gram -.

### **COCCUS BACTERIA**

The bacterium is in a spherical form, it is called coccus

### **BACILLUS BACTERIA**

The bacterium is in a more or less elongated stick form; it is called bacillus.

### **ISO 22196**

International standard that measures the decline of bacteria in contact with a substance: 10<sup>6</sup> colonies of bacteria are put in a box (or in a liquid) and after a certain period (24 hours to 35 °C in general) remaining colonies are counted.

### **ANIOSURF**

disinfection liquid from the company Anios, widely used in the medical community.

### **VIRUCIDE, FUNGICIDE, YEASTICIDE**

a product or process that has the ability to inactivate viruses, fungi or yeasts under defined conditions.

