MASTER SHIELD®

Antimicrobial Coating

MASTER®
HARDWARE FOR WINDOWS AND DOORS

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WHY MASTERSHIELD®?

The importance of hand hygiene, ISS guidelines.

Hands are a receptacle for germs; a small percentage is represented by non-pathogenic microorganisms, which are normally present on the skin without causing any harm. However, viruses and bacteria that circulate in the air or with which we come into contact by touching different surfaces can be added to these microorganisms.

When they find an ideal environment, germs nestle there and, if environmental conditions are favourable, they proliferate by multiplying at an impressive rate.

They can survive for hours on surfaces: toys, phones, handles, tables, computer keyboards, towels or other objects, and from here they can be transmitted to nose, mouth or eyes, simply through our hands.

Pathogenic germs colonizing our skin can be responsible for many diseases, from the most frequent and least severe, such as flu and colds, to the most severe ones.

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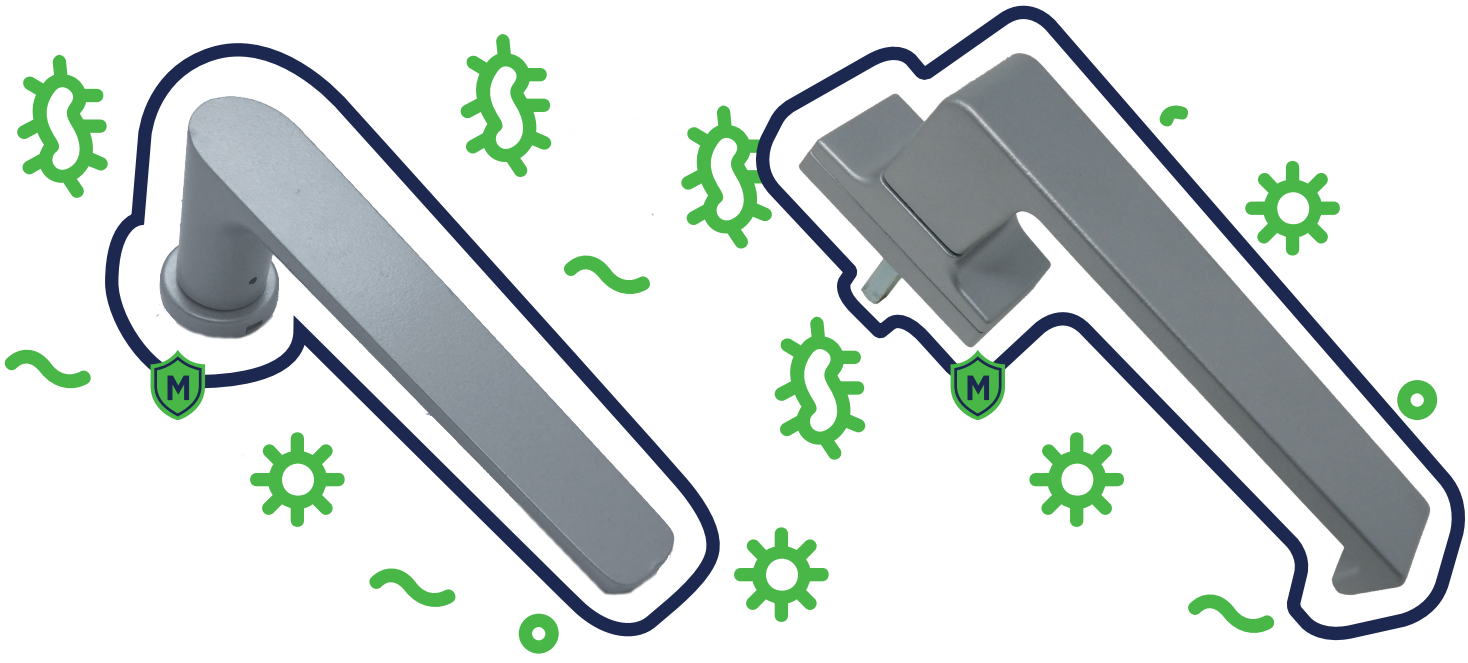
Today, more than ever before, this is a matter of responsibility

Master Group is a leader in manufacturing and sale of accessories for windows and doors. Therefore, for our lines of handles, window handles and cremone bolts, we have implemented a solution that provides active protection precisely where it is most demanded, i.e. on the surfaces that come into contact with our hands frequently.

The MASTERShield® treatment immediately mitigates microbial proliferation and is particularly suitable in hospitals, schools, industrial complexes or recreational facilities, i.e. all places that are usually crowded.

Microorganisms are present everywhere, and many times they are a serious problem for the construction and maintenance of some infrastructures, especially those intended for public use and/or healthcare.

The MASTERShield® treatment actively contributes to the maintenance of hygiene standards thanks to its antimicrobial action. The products treated with MASTERShield® do not require special maintenance and are suitable for frequent and prolonged use.



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How does it work?

A visually clean surface does not guarantee a corresponding quality from a chemical and microbiological viewpoint. Moreover, the effectiveness of cleaning decreases over time, and this is why further protection is needed.

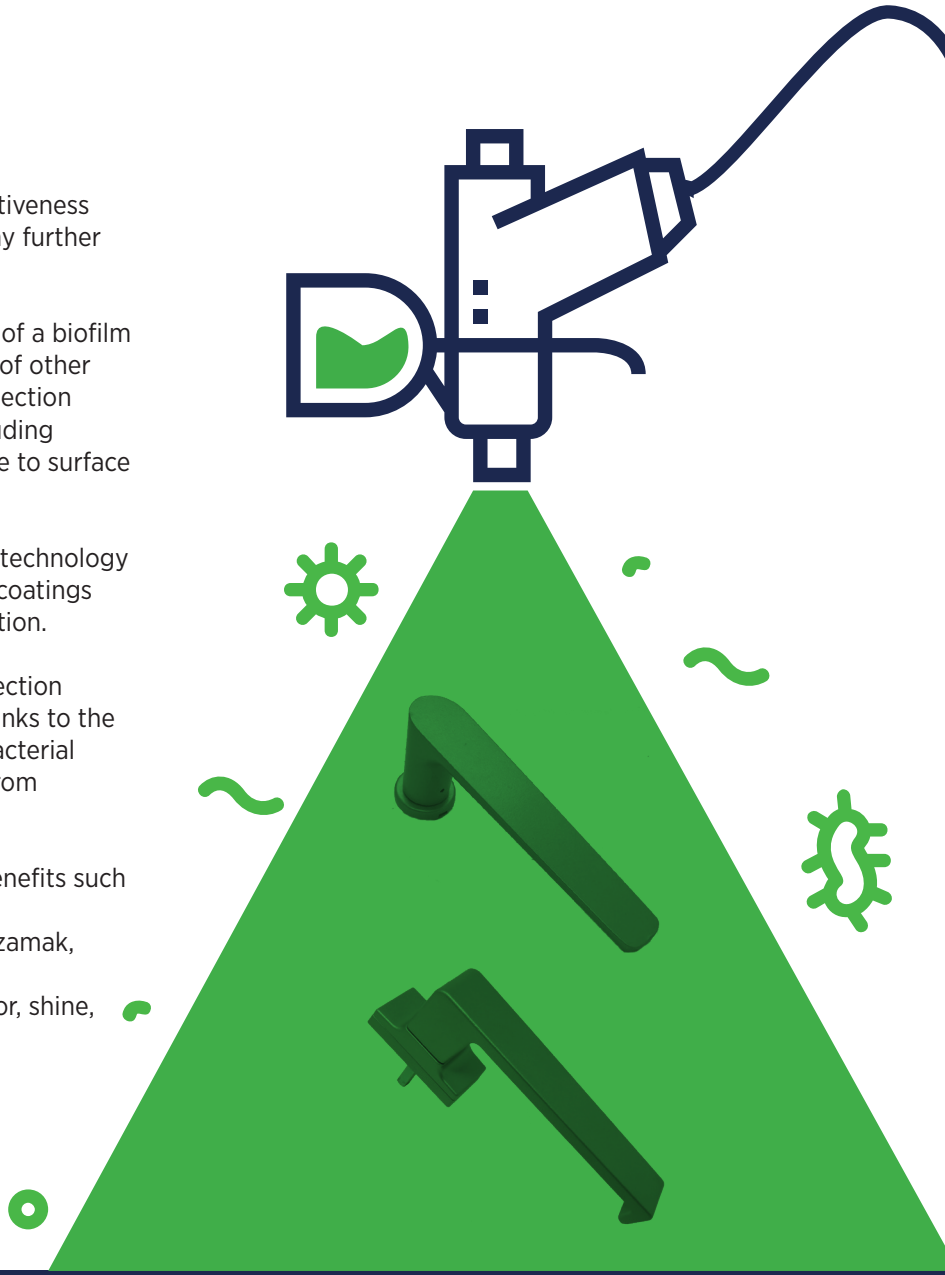
Surfaces in general are subject to the creation of a biofilm (viscous structure of organic origin consisting of other bacteria, natural salts, algae) able to offer protection against microorganisms. Microorganisms, including bacteria, fungi, mycetes and viruses, contribute to surface deterioration.

The MasterShield® treatment uses a particular technology for the production of powder paint that gives coatings superior resistance to microorganism proliferation.

Specifically, this technology offers active protection based on the emission of silver ions, which thanks to the oxidation process, guarantee a constant antibacterial effect over time, preventing microorganisms from growing and multiplying.

The MasterShield® treatment features other benefits such as:

- Increased substrate protection (aluminium, zamak, steel, etc.)
- Improved aesthetic impact of the finish (color, shine, structure, etc.)



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The lab tests

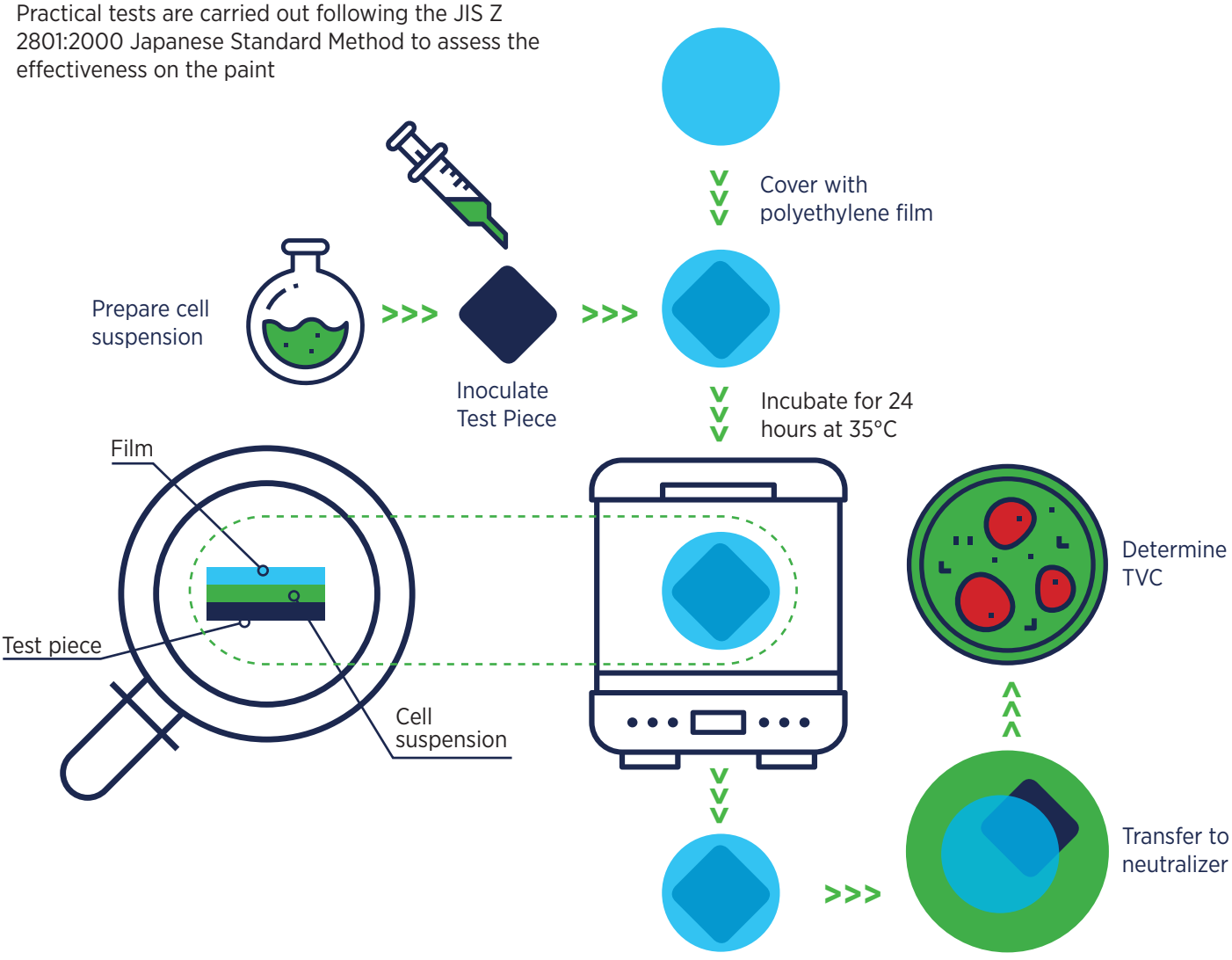
According to tests performed at the Monza Analysis Center, one year after application, the treatment has the same properties as the first day, and protection is not affected by cleaning or use of interfering substances.

Surfaces treated with MasterShield®:
- They keep the level of germs on the surface of the coating applied very low.
- They ensure excellent hygiene.
- They easily withstand normal current hygienic cleaning processes.

Practical tests are carried out following the JIS Z 2801:2000 Japanese Standard Method to assess the effectiveness on the paint

According to this standard, the coating is subjected to an attack of a colony of previously selected and numerically counted microorganisms.
After 24 hour exposure, a new count of microorganisms still present is carried out to assess the effectiveness of the coating.

The activity of MasterShield® treatment is activated gradually, and becomes stable after 24 hours, with a reduction in microorganism count of 99 -100%.



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Accredited laboratories in which the tests were carried out

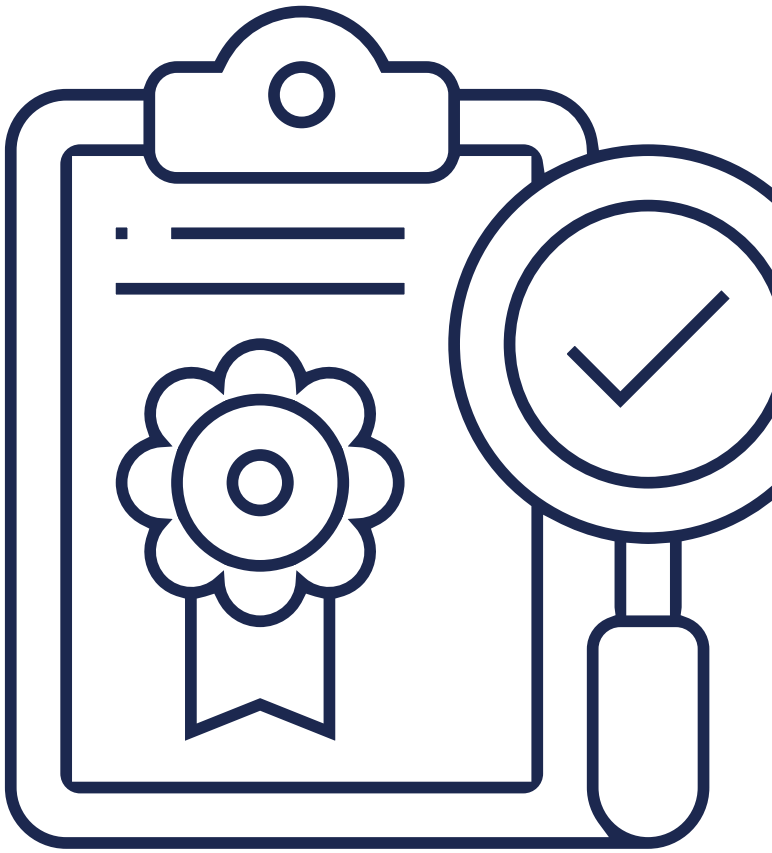
University of Pavia
(Monza Analysis Center
- Pseudomonas aeruginosa ATCC 15442
- Escherichia coli ATCC 10536
- Staphylococcus aur eus ATCC 6538
- Enterecoccus hirae ATCC 10541

Chelab® (ISO/DIS 22196)
- Escherichia coli ATCC 8739
- Staphylococcus aureus ATCC 6538P

Sabater Pharma
(Farmacopea Europea 6a Edición 2008) UNE- EN 104
- Aspergillius niger ATCC 16404
- Candida Albicans ATCC 10231
- Pseudomonas aeruginosa ATCC 9027
- Staphylococcus eureus ATCC 6538

Law Laboratories Ltd
- Staphylococcus aureus ATCC 6538P
- Escherichia coli ATCC 8739

AIMPLAS Instituto Tecnológico del plástico
(ISO 22196 “Plastic - Measurement of antibacterial activity on plastic surfaces”)
- Escherichia coli DSM 346
- Staphylococcus aureus DSM 1756



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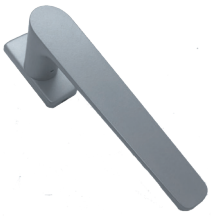
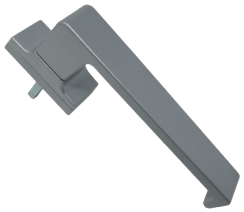
Compatible product lines

MINIMAL DESIGN PROGRAM






LINEA ITALIA PROGRAM




COMFORT PROGRAM

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The finishes

MASTER SHIELD® Antimicrobial Coating

PAINTING

NATURAL FINISH	RAL 1	RAL2	SPECIAL FINISHES
Mill	**R9010** (White)	**R9001** (lighr ivory)	**ARGEN** (silver anodized effect)
Nylon Black	**R9010OP** (mat white)	**R9003** (white)	**BRONZ** (bronz anodized effect)
	R1013 (ivory)	**R9005** (black)	
	R1013OP (mat ivory)	**R6005** (green)	
	AVOR (dark ivory)	**R6005OP** (mat green)	
	NEOPA (mat black)	**R8017** (brown)	
	Nylon 9010 (White)	**R8017OP** (mat brown)	
	Nylon 1013 (Ivory)	**R8019** (grey brown)	
		R9006 (silver)	
		R7001 (silver grey)	
		VEARG (silver)	
		VEBRO (bronze)	
		MARAG (wrinkled brown)	
		VSCRA (dark wrinkled green)	
		G6360 (gothic green)	
		G9420 (gothic grey)	
		G3976 (gothic brown)	
		GTECH (tech grey)	
		VGRAY (metal grey)	
		RAL 9016 (Ice White)	
		RAL 9016OP (Mat Ice White)	
		RAL 9007 (Aluminium Grey)	
		RAL 1015OP (Mat ivory)	
		RAL 7016OP (Mat anthracite gray)	
		Nylon Green	
		Nylon Brown	

ANODIZED

OTHER FINISHES

ANODIZED	TEK	SPECIALI (K-Finish)	PVD
OXBRO (Bronze)	**OLDBRO** (*Old vintage finish bronze*)	**KGOLD** (Gold)	**PVOTT** (Brass)
OXARG (Silver)	**OLDARG** (*Old vintage finishe silver*)	**KINOX** (Inox)	**PVSAT** (Inox satin)
OXORO (Gold)		**KSATI** (Inox satin)	
OXSAT (Inox satin)			

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Corrosion resistance parameters by type of finish

TYPE OF FINISH	CORROSION RESISTANCE				
	CLASS 1 LOW	**CLASS 2** MODERATE	**CLASS 3** HIGH	**CLASS 4** VERY HIGH	**CLASS 5** EXCEPTIONAL
RAL 1 | RAL 2					-
GTECH				M	-
SPECIAL PAINTS			M	M	-
OX - OXIDATION					-
OTHER SPECIAL FINISHES		M	M	M	-
PVD					
TEK FINISHES					-
	INDOOR USE NON-AGGRESSIVE ENVIRONMENTAL CONDITIONS		**OUTDOOR USE** NON-AGGRESSIVE ENVIRONMENTAL CONDITIONS	**OUTDOOR USE** SEVERE OR VERY SEVERE ENVIRONMENTAL CONDITIONS	

M Working with MASTERSHIELD treatment corrosion resistance increases to CLASS 4 on all finishes.

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