



Life Sciences Solutions

Floor and wall coverings
high performance

Gerflor

Cleanroom Requirements

Controlled environments

A clean room is a space in which **particules or molecular contaminants** are mastered and controlled. In addition, **physical parameters** such as temperature, ESD, humidity or pressure can be controlled. These environments are used for electronic, pharmaceutical or medical equipment productions.

Some sectors will need to ensure an environment **free of bacteria, viruses or other micro-organisms**.




High control environment

Floor & wall protection, focus points to manage

 Contamination management

 Resistance to external attacks

 Cleaning and decontamination

 ESD properties

 GMP compliance



Floor and wall solutions

Gerflor works with the best international institutes in order to guarantee these customers optimum performance. .



Easy zoning

Cleanroom standards

Gerflor ISO and GMP compliant

Contamination management



ISO 14644-1 specifies the classification of air cleanliness in terms of concentration of airborne particles in cleanrooms and clean zones.

ISO 14644-4 specifies the requirements for the design, construction and start-up of cleanroom facilities.

ISO 14644-8 establishes the classification of air chemical cleanliness (ACC) in cleanrooms and associated controlled environments, in terms of airborne concentrations of specific chemical substances.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

ISO 22196 specifies a method of evaluating the antibacterial activity of antibacterial-treated plastics, and other non-porous, surfaces of products.

ISO 21702 specifies proper methods for measuring antiviral activity on plastics and other non-porous surfaces of antiviral-treated products against specified viruses.

ISO 846 is a microbiological tests to determine the action of fungi and bacteria on plastics.

Resistance to external attacks



ISO 14644-4 specifies the requirements for the design, construction and start-up of cleanroom facilities.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

ISO 2812-1 specifies general methods for determining the resistance of an individual-layer or multi-layer system of coating materials to the effects of liquids, other than water, or paste-like products.

Cleaning and decontamination



ISO 8690 Measurement of radioactivity — gamma-ray and beta-emitting radionuclides — Test method to assess the ease of decontamination of surface materials.

ISO 14644-9 establishes the classification of cleanliness levels on solid surfaces by particle concentration in cleanrooms and associated controlled environment applications.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

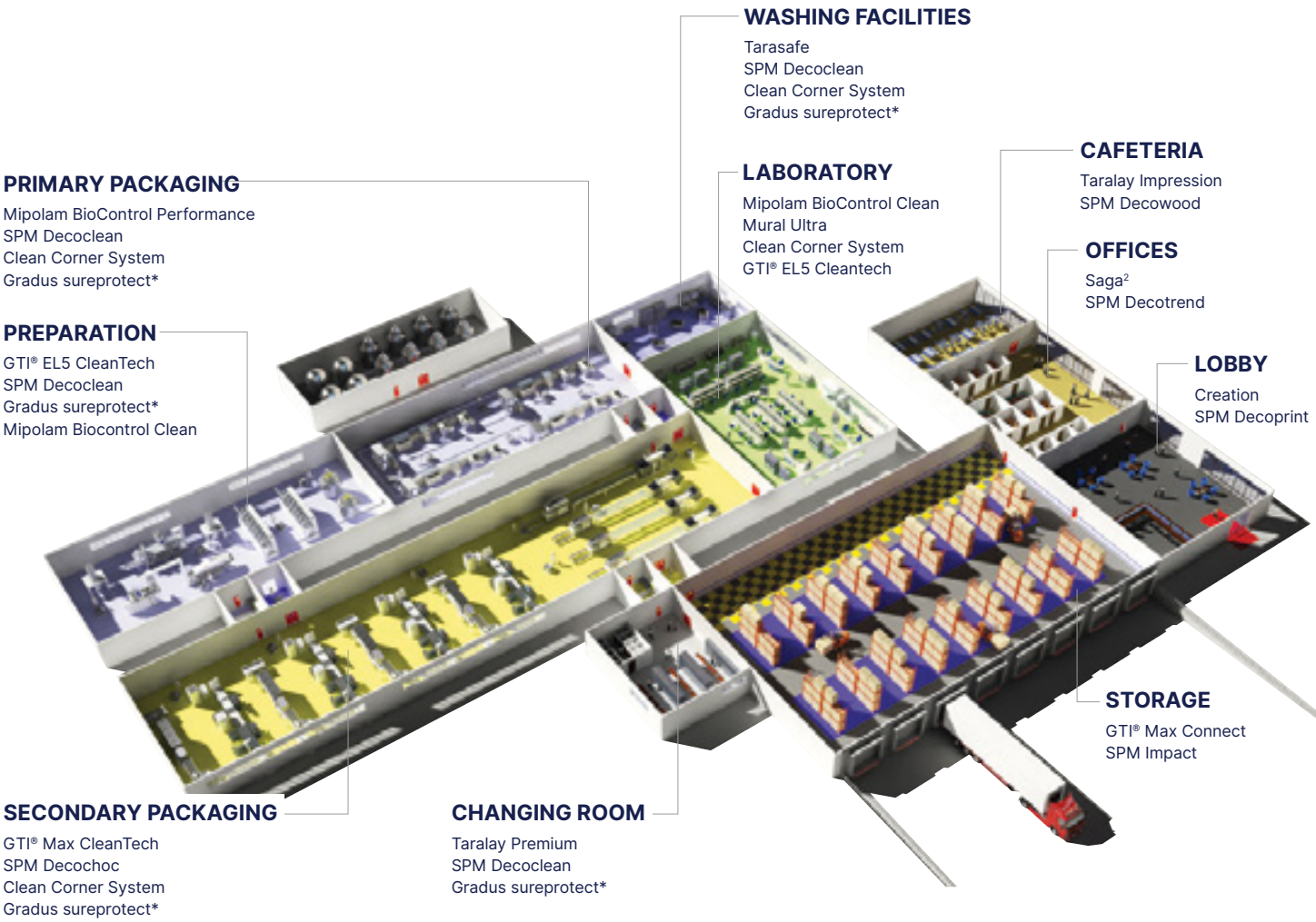
Esd properties



IEC 61340-5-1 Protection of electronic devices from electrostatic phenomena – General requirements.

ANSI/ESD S20.20 provides administrative and technical requirements for establishing, implementing, and maintaining an ESD Control Program to protect electrical or electronic parts, assemblies, and equipment susceptible to damage by electrostatic discharges.

A complete Solution



* UK only

Exclusive solutions
for renovation /
rehabilitation of your
sites

■ A TECHNICAL ASSISTANCE SERVICE
(TAS) SUPPORTS YOU ON YOUR
PROJECTS



Ideal for renovation



ESD areas

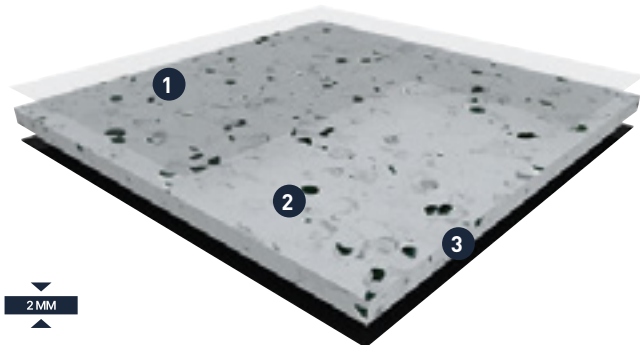
ISO 5

GMP-
Class A

H₂O₂
RESISTANT



Mipolam Biocontrol EI5

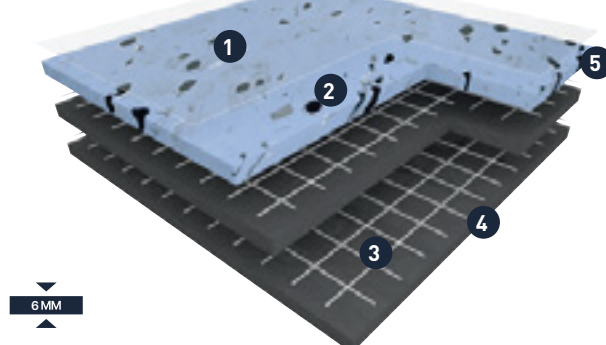


- 1 Conductive surface treatment
- 2 Homogeneous conductive layer with carbon black
- 3 Backing treated with carbon black



Sold in rolls
of 20 x 2 m

GTI® EI5 Cleantech



- 1 Static conductive surface treatment
- 2 Static conductive wear layer
- 3 Double fiber glass reinforcing grid
- 4 Static conductive backing
- 5 Straight edges



Sold in tiles of
650 x 650 mm



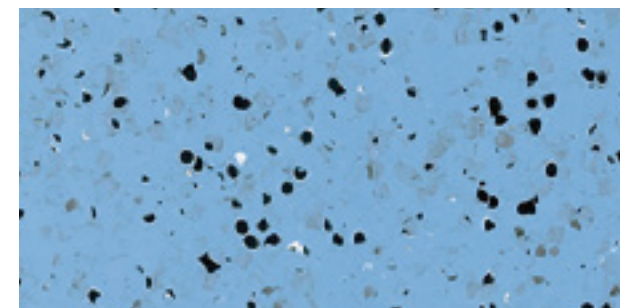
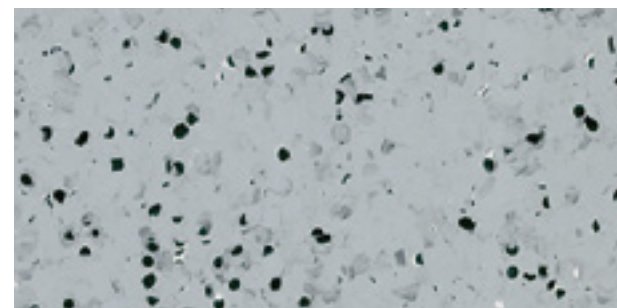
Watertight
system



A little to no
adhesive

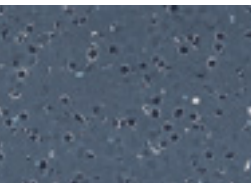


High mechanical
traffic resistance

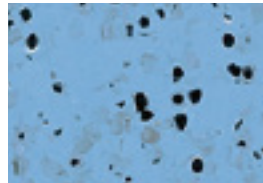


■ THE HIGH PERFORMANCE FLOOR FOR
ESD CLEANROOMS

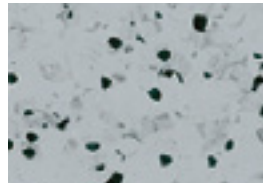
■ THE PERFECT SOLUTION FOR
RENOVATION OF CLEANROOMS AND ESD
AREAS



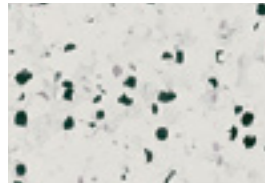
2002 Volcano / 0351 Black



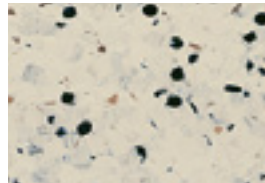
2004 Horizon / 0354 Bleu



2006 Medium Fog / 0352 Grey



2001 Light Fog / 0350 Light Grey

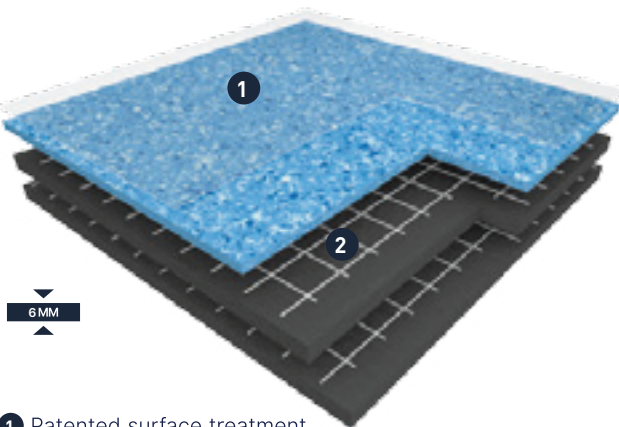


0353 Beige

GTI® Max Cleantech

ISO 3

H₂O₂
RESISTANT



- 1 Patented surface treatment
- 2 Double fiber glass reinforced grid



Sold in tiles of
600 x 600 mm



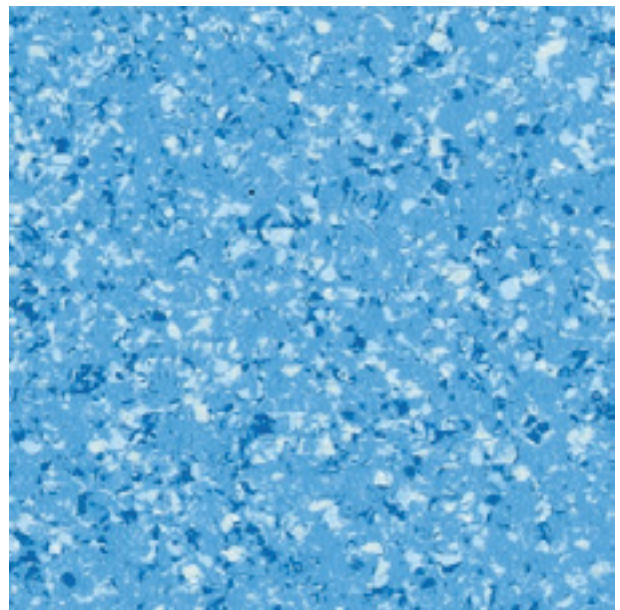
Watertight
system



A little to no
adhesive



High mechanical
traffic resistance



■ THE EXCLUSIVE SOLUTION FOR RENOVATION
OF CLEANROOMS WITH HIGH TRAFFIC



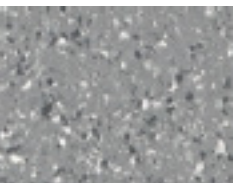
0235 Dark Grey



0236 Black



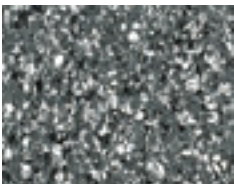
0247 Magma



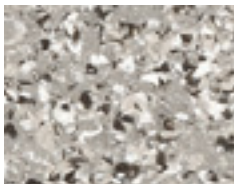
0266 Peler



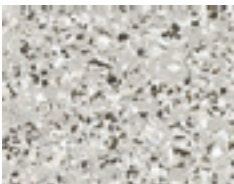
0234 Clear Grey



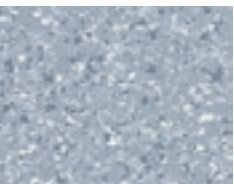
0249 Carbon



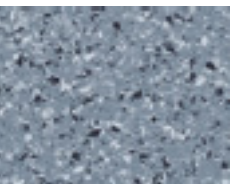
0264 Ponente



0265 Maestrale



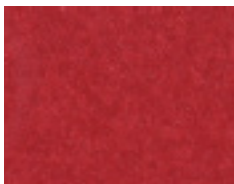
0253 Aluminium



0252 Titanium



0231 Yellow



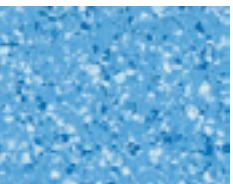
0232 Red



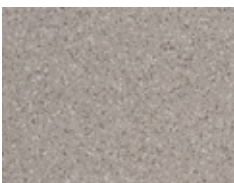
0233 Green



0230 Blue



0255 Saphir*



0267 Levante

* For US, on demand

Mipolam Biocontrol Performance

ISO 3

GMP-Class A

H₂O₂ RESISTANT

1 Surface treatment

2 2 mm calendered PVC single layer

■ HIGH PERFORMANCE SOLUTION FOR CLEANROOMS

■ 17% PLANT-BASED CONTENT

Sold in rolls of 20 x 2 m

Resistant to micro biological attacks

H₂O₂ RESISTANT

Resistant to decontamination process

Resistant to heavy load

Resistant to chemical spills

6009 Grey Stone

6039 Pebble

6029 Cloud

6043 Wood

6044 Sea Storm

6008 Calico

6041 Clay

6031 Breeze

6001 Cotton

6032 Sunshine

6025 Tangelo

6075 Cardinal

6036 Oceania

6006 Blue Sky

6027 Accacia

6034 Mole

* More colours available

Mipolam Biocontrol Clean

ISO 3

GMP-Class A

H₂O₂ RESISTANT

1 Surface treatment

2 2 mm calendered PVC single layer

■ THE REFERENCE FOR CLEANROOMS

Sold in rolls of 20 x 2 m

H₂O₂ RESISTANT

Resistant to decontamination process

Resistant to heavy load

Resistant to chemical spills

5445 Tree Bark

5443 Wood Path

5441 Clay Soil

5412 Moon Stone

5404 Vanilla Sky

5459 Stormy Cloud

5430 Sideral Grey

5413 Rain Fall

5420 Stone Powder

5408 Chalk Dust

5436 Tiger Eye

5406 Moqui

5427 Green Zest

5455 Lava Flow

5432 Sun Stone

5417 Foggy Hill

5456 Intense Indigo

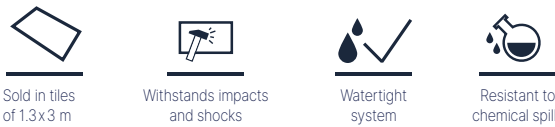
5475 Intense Ruby

Decoclean wall panel system

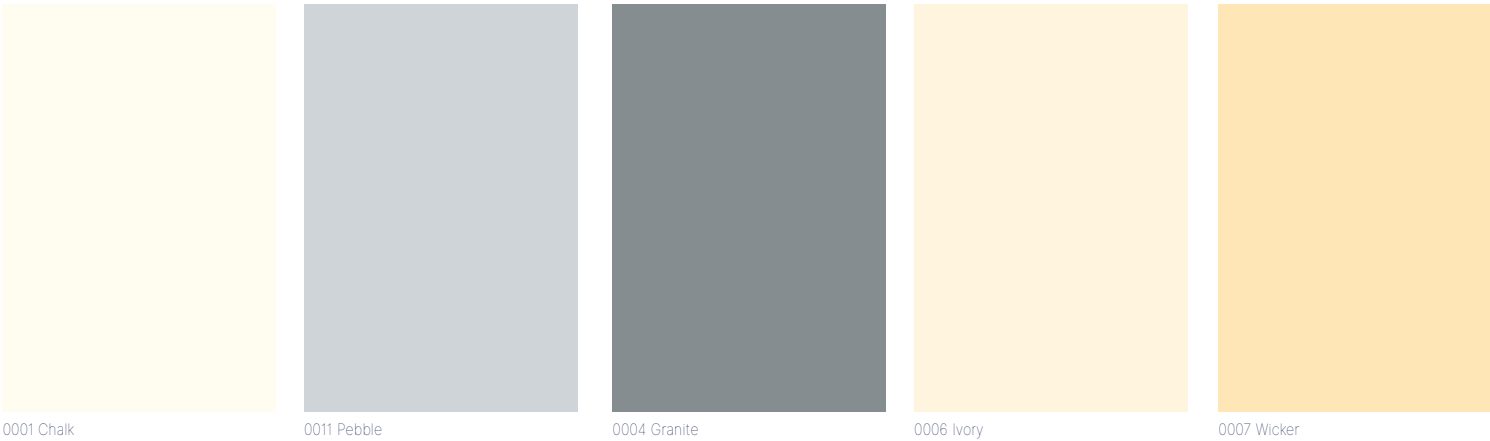
ISO 5
GMP-Class A
H₂O₂ RESISTANT



1 Solid color PVC 2 mm thick



- **ANTIBACTERIAL HOMOGENEOUS** resilient wall panels PVC, tinted in the mass, thickness 2 mm
- **EASY TO INSTALL:** delivered with a peel-off protective film to avoid having to do a systemic cleaning after installation
- **LOW MAINTENANCE:** can be welded to floor for continuous floor-to-ceiling watertight room and resistant to chemical spills
- **RESISTANT TO NUCLEAR DECONTAMINATION** according to ISO 8690
- **BACTERIOLOGICAL RESISTANCE** according to ISO 22196, Class 1 (Bs2d0)
- **SUSTAINABLE:** REACH-compliant, GREENGUARD certified, low VOC, 100% recyclable, Phthalates-free, non polluting / non-toxic material, no heavy metals



0001 Chalk 0011 Pebble 0004 Granite 0006 Ivory 0007 Wicker

■ **WALL PROTECTION SOLUTION IDEAL FOR RENOVATION**

Clean corner system



Gerflor floor-to-ceiling smooth transition



- **COMPLIANT WITH GMP**
- **EASY COVING**
- **ULTRA RESISTANT BI-MATERIAL CORNER PROFILES**
- **QUICK AND EASY CLEANING AND DECONTAMINATION**



- 1 Clean Corner internal floor angle
- 2 Clean Corner external floor angle

Watertightness control system



- **VALIDATION:** the quality of the installation and the sealtightness of the flooring is checked before commissioning.
- **RELIABILITY:** Periodic checks of the integrity of the flooring during service stoppages.
- **QUALITY:** Any defects can be repaired before commissioning. Any moisture-related problems are identified.
- **DECONTAMINATION:** Prevents a contamination zone from forming.



				Mipolam Biocontrol Performance	Mipolam Biocontrol Clean	GTI® Max Cleantech	GTI® EL5 Cleantech	Mipolam Biocontrol EL5	DecoClean
Performances in cleanroom									
Particulate emission	Fraunhofer method	ISO 14644-1	-	ISO3	ISO3	ISO3	ISO5	ISO5	ISO5
Air cleanliness	ISO 16000-6, -9,-11	ISO 14644-8	(µg/m³/h)	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 9.6	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 8.2	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 8.5	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 8	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 7.7	TCOV = unmesurable (23°C) ACCm/AMCm ≤ - 7.7
Anion emission	Fraunhofer method	ISO 14644-8	(µg/m³/h)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)
Amonium N emission	ISO 11732	ISO 14644-8	(µg/m³/h)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)
Static electrical propensity / Body voltage generation	EN 1815	-	kV	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	-
	IEC 61340-4-5 / ASTM 97.2	EN61340-5-1 ESD S2020	V	-	-	-	< 100	< 100	-
Electrical resistance	EN61340-4-1 ESD 7.1	EN61340-5-1 ESD S2020	Ω	Isolating: > 10 ¹¹ Ω	Isolating: > 10 ¹¹ Ω	Isolating: > 10 ¹¹ Ω	< 10 ⁹ Ω	< 10 ⁹ Ω	-
Resistance on Microorganism development on the floor ⁽¹⁾	ISO 846	BPF / GMP	Part A (fongi)	Good	Good	Good	Good	Good	-
			Part C (bacterial)	Excellent	Excellent	Very Good	Excellent	Excellent	
Anti-viral activity ⁽¹⁾	VirHealth	ISO 21702	VirHealth	99.7% after 2 h 99.9% after 5 h	99.7% after 2 h 99.9% after 5 h	-	-	99.7% after 2 h 99.9% after 5 h	99,96 % after 2h 99,99 % after 5h
Anti-bacterial activity ⁽¹⁾	Intertek	ISO 22196	INTERTEK	> 99% inhibits growth	99% inhibits growth	-	-	> 99% inhibits growth	> 99 % de réduction
Chemical resistance	ISO 2812-1	ISO 14644-4/BPF	-	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Nuclear decontamination	-	ISO 8690	-	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Resistance to gaseous H ₂ O ₂	Bioquell	ISO 14644-4/BPF	-	No alteration	No alteration	No alteration	No alteration	No alteration	Unmesurable (23°C)
Maximum static load	-	ASTM F970	-	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	-
Fire behaviour		EN 13501-1	Class	Bfl-S1	Bfl-S1	Bfl-S1	Bfl-S1	Bfl-S1	Bs2d0
Fire rating	-	ASTM E 648	Class	Class 1	Class 1	Class 1	Class 1	Class 1	Class A
Slip resistance	-	DIN 51 130	Class	R9	R9	R10	R9	R9	-
Coefficient of friction	-	ASTM D 2047	-	0.56 (OK)	0.56 (OK)	0.56 (OK)	0.56 (OK)	0.56 (OK)	-
		ASTM C 1028	-	Meets requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements	-

Description

Total thickness	-	EN ISO 24346 (EN428)	mm	2 (0.08")	2 (0.08")	6 (1/4")	6 (1/4")	2 (0.08")	2 (0.08")
Roll size	-	EN ISO 24341 (EN426)	m	2 x 20 (6'6 x 66')	2 x 20 (6'6 x 66')	-	-	2 x 20 (6'6 x 66')	-
Tile size*	-	EN ISO 24342 (EN727)	mm	608 x 608 (23.9" x 23.9")	608 x 608 (23.9" x 23.9")	600 x 600 (23.6" x 23.6")	650 x 650 (25.6" x 25.6")	608 x 608 (23.9" x 23.9")	1300x3000 (4.26» x 9.8»)
European classification	-	EN ISO 10874 (EN685)	Classification	34-43	34-43	34-43	34-43	34-43	-
Reference specification	-	ASTM F1913	-	Meets requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements	-
		EN 14041	-						

* Measured before installation / ** Measured with ESD shoes compliant with ESD S20.20 and IEC 61340.5.1
(1) Subject to respect of appropriate maintenance and decontamination protocols.



we care / we act Our Commitments for a Sustainable future

CARBON FOOTPRINT*
-20 % kg CO₂ equivalent/m² between2020 and2025

BIOSOURCED CONTENT***
10 % by2025

RECYCLED CONTENT
30 % by2025

ADHESIVE FREE**
35 % by2025

ANNUAL VOLUME RECYCLED
60 000 t by2025



* Scopes 1 and 2 defined in the GHG protocol *** % of activity with biosourced materials ** % of activity - adhesive free solution