Life Sciences Solutions

Floor and wall coverings
high performance

Gerflor

Cleanroom Requirements

Controled 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

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

Floor and wall solutions

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

WASHING FACILITIES
Tarasafe
SPM Decoclean
Clean Corner System
Gradus sureprotect*

PRIMARY PACKAGING
Mipolam BioControl Performance
SPM Decoclean
Clean Corner System
Gradus sureprotect*

LABORATORY
Mipolam BioControl Clean
Mural Ultra
Clean Corner System
GTI EL5 Cleantech

CAFETERIA
Taralay Impression
SPM Decowood

OFFICES
Saga²
SPM Decotrend

PREPARATION
GTI EL5 CleanTech
SPM Decoclean
Gradus sureprotect*
Mipolam Biocontrol Clean

LOBBY
Creation
SPM Decoprint

STORAGE
GTI Max Connect
SPM Impact

SECONDARY PACKAGING
GTI Max CleanTech
SPM Decochoc
Clean Corner System
Gradus sureprotect*

CHANGING ROOM
Taralay Premium
SPM Decoclean
Gradus sureprotect*

* UK only

Exclusive solutions for renovation / rehabilitation of your sites

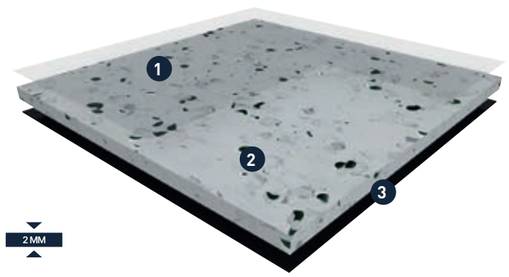
- **A TECHNICAL ASSISTANCE SERVICE (TAS) SUPPORTS YOU ON YOUR PROJECTS**

Ideal for renovation

ESD areas

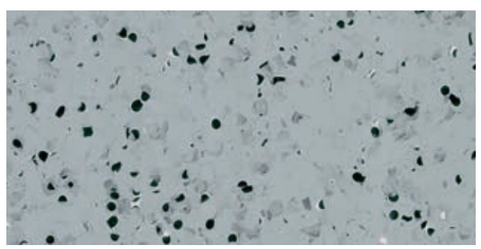
ISO 5 | GMP-Class A | H_2O_2 RESISTANT

Mipolam Biocontrol EI5

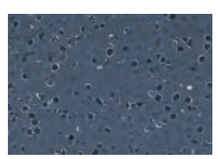


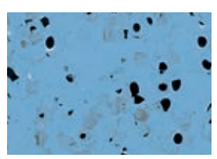
1. Conductive surface treatment
2. Homogeneous conductive layer with carbon black
3. Backing treated with carbon black

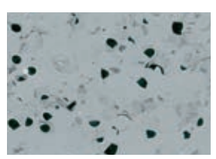
Sold in rolls of 20 x 2 m

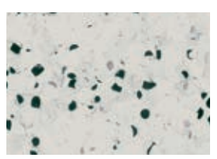


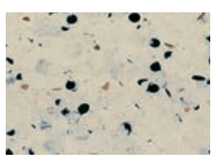
THE HIGH PERFORMANCE FLOOR FOR ESD CLEANROOMS


2002 Volcano / 0351 Black

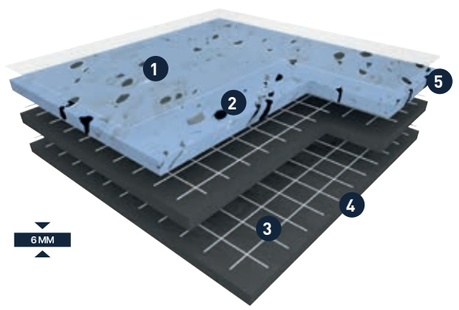

2004 Horizon / 0354 Bleu


2006 Medium Fog / 0352 Grey


2001 Light Fog / 0350 Light Grey

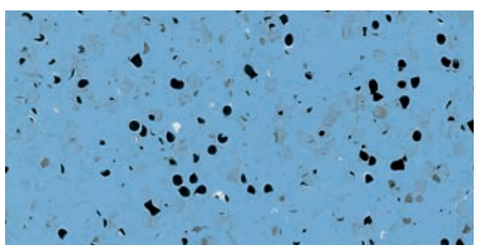

0353 Beige

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

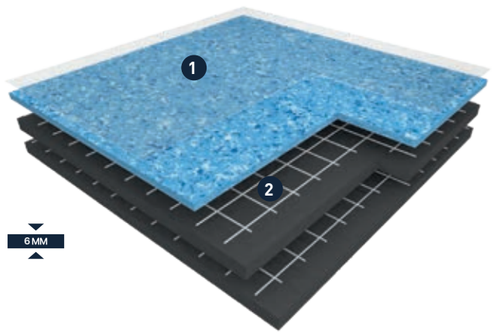
Sold in tiles of 650 x 650 mm | Watertight system | A little to no adhesive | High mechanical trafic resistance



THE PERFECT SOLUTION FOR RENOVATION OF CLEANROOMS AND ESD AREAS

GTI Max Cleantech

ISO 3 | H_2O_2 RESISTANT



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

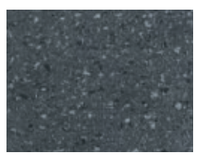
Sold in tiles of 600 x 600 mm | Watertight system | A little to no adhesive | High mechanical trafic resistance

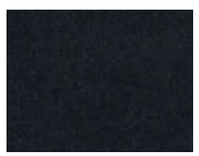
THE EXCLUSIVE SOLUTION FOR RENOVATION OF CLEANROOMS WITH HIGH TRAFFIC

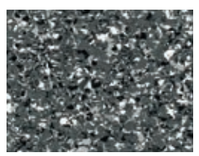

0263 Bora*


0259 Grecale*


0235 Dark Grey

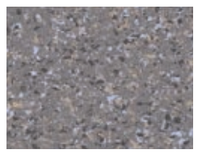

0260 Ora*

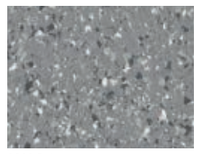

0236 Black


1249 Tramontana

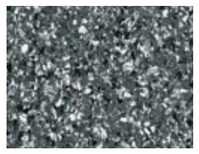

0261 Scirocco*


0262 Libeccio*


0247 Magma


0266 Peler

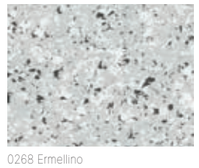

0234 Clear Grey

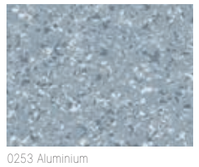

0249 Carbon

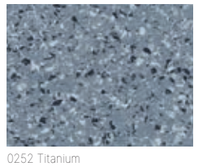

0267 Levante


0264 Ponente


0265 Maestrale

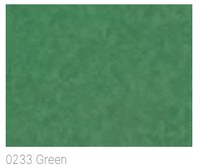

0268 Ermellino


0253 Aluminium


0252 Titanium


0231 Yellow


0232 Red


0233 Green

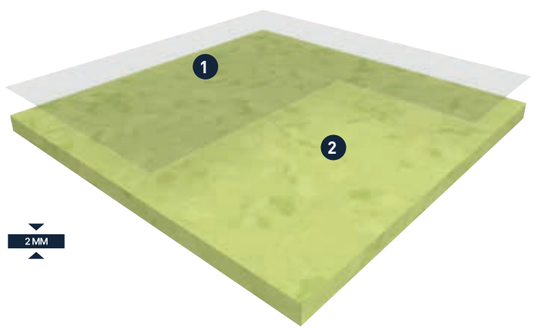

0230 Blue


0255 Saphir*

* For US, on demand

Mipolam Biocontrol performance

ISO 3 | GMP-Class A | H_2O_2 RESISTANT | ORGANIC INSIDE



1. Surface treatment
2. 2 mm calendered PVC single layer

- **HIGH PERFORMANCE SOLUTION FOR CLEANROOMS**
- **17% PLANT-BASED CONTENT**

2M — Sold in rolls of 20 x 2 m

Resistant to micro biological attacks

H_2O_2 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

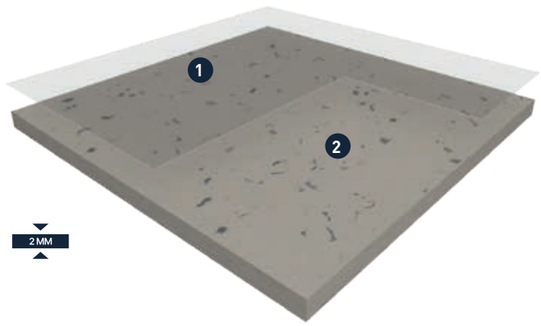

6006 Blue Sky


6027 Accacia

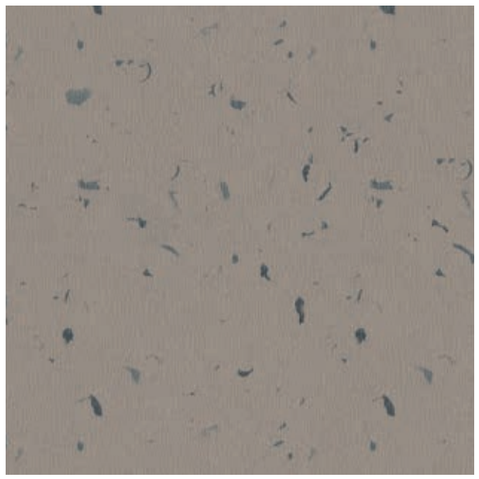
* More colours available

Mipolam Biocontrol clean

ISO 3 | GMP-Class A | H_2O_2 RESISTANT



1. Surface treatment
2. 2 mm calendered PVC single layer



- **THE REFERENCE FOR CLEANROOMS**

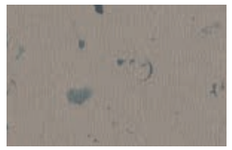
2M — Sold in rolls of 20 x 2 m

H_2O_2 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** | **H_2O_2 RESISTANT**

1 Solid color PVC 2 mm thick

■ **WALL PROTECTION SOLUTION IDEAL FOR RENOVATION**

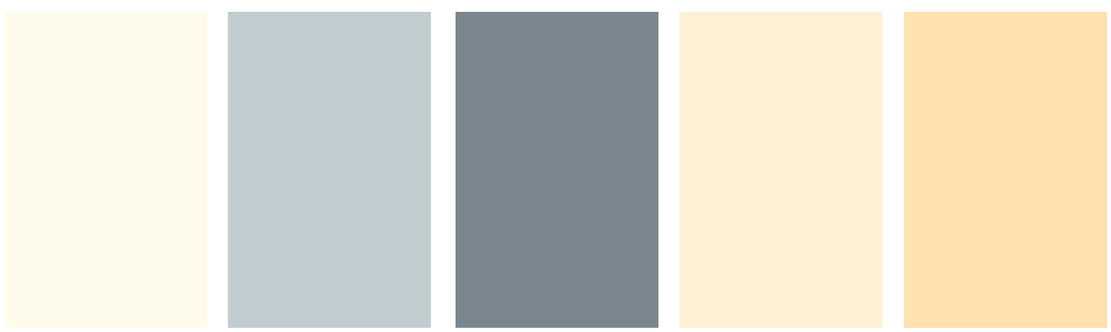
Sold in tiles of 1.3 x 3 m

Withstands impacts and shocks

Watertight system

Resistant to chemical spills

- **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

Clean corner system

CLEAN CORNER SYSTEM

Gerflor floor-to-ceiling smooth transition

1 Clean Corner internal floor angle

2 Clean Corner external floor angle

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

Watertightness control system

WCS Watertightness Control System

- **VALIDATION:** the quality of the installation and the sealtighness 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.

Gerflor Biocontrol

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Z0013949

PERFORMANCES IN CLEANROOM

				MIPOLAM BIOCONTROL PERFORMANCE	MIPOLAM BIOCONTROL CLEAN	GTI MAX CLEANTECH	GTI EL5 CLEANTECH	MIPOLAM BIOCONTROL EL5	DECOCLEAN
Particulate emission	Fraunhofer method	ISO 14644-1	-	ISO3	ISO3	ISO3	ISO5	ISO5	ISO5
Air cleanliness	ISO 16000-6, -9,-11	ISO 14644-8	(µg/m²/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/m²/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/m²/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% inibits growth	99% inibits growth	-	-	> 99% inibits 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_2O_2	Bioquell	ISO 14644-4/BPF	-	No alteration	No alteration	No alteration	No alteration	No alateration	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.

www.gerflorusa.com www.gerflor.co.uk

we **care** / we **act** Our Commitments for a Sustainable future

CARBON FOOTPRINT* **-20 %** kg CO_2 equivalent/m² between **2020** and **2025**

BIOSOURCED CONTENT*** **10 %** by **2025**

RECYCLED CONTENT **30 %** by **2025**

ADHESIVE FREE** **35 %** by **2025**

ANNUAL VOLUME RECYCLED **60 000 t** by **2025**

Gerflor®

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

RC Lyon B 726 580 152 - jpe - 04/2022 - Z0013949 - Indicative documentation cost: 12 €