## The repairable surface

Deep scratches, holes, burns or other surface damage can be easily and effectively repaired, without leaving any visible trace or affecting the original characteristics of the floor. This genuine, 100% repairable surface is unique to Colorex EC and Colorex SD and something that no other flooring system can promise.

### Invisible repairs

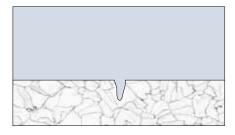
Deep scratches and other serious damage can be repaired by heat welding. A small strip of Colorex of the same colour should be welded directly into the damage using a hand welding machine. After the excess material has been trimmed off, the repaired spot can be restored to a goodas-new condition by sanding and dry polishing.

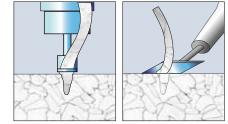
- Unique 100% repairable surface
- Scratches or serious damage can be solved
- It will be restored to a good-as-new condition

### Repair

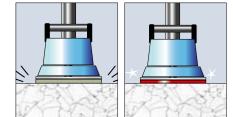
**Problem:** Deep and long scratches, holes and burns **Advantage:** Invisible repairs without damaging the initial characteristics of the product

**Reason:** Perfect homogenous product with low plasticizer content





Heat welding and material



Sanding and dry polishing

#### Maintenance

Surface damage such as burns, excessive wear or discoloration from colouring chemicals can be removed by sanding with a conventional eccentric sander. Use a sand paper grade of 80 to start with and thereafter grades of up to 240. After sanding, the surface can be restored to its original quality and appearance by dry polishing with a red pad.

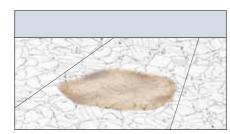
- · Easy sanding with conventional equipment
- · Restore to its original quality and appearance by simply polishing

### Abrasive cleaning

**Problem:** Surface damage like burns, abrasion or staining

**Advantage:** Abrasive cleaning possible

**Reason:** Thanks to a compact high pressure pressed surface a PUR treatment is not necessary







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Forbo Flooring Systems is part of the Forbo Group, a global leader in flooring, bonding

and movement systems, and offers a full range of flooring products for both

quality linoleum, vinyl, textile, flocked and entrance flooring products combine

functionality, colour and design, offering you total flooring solutions for any environment.

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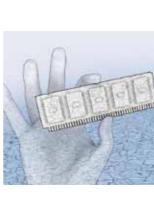
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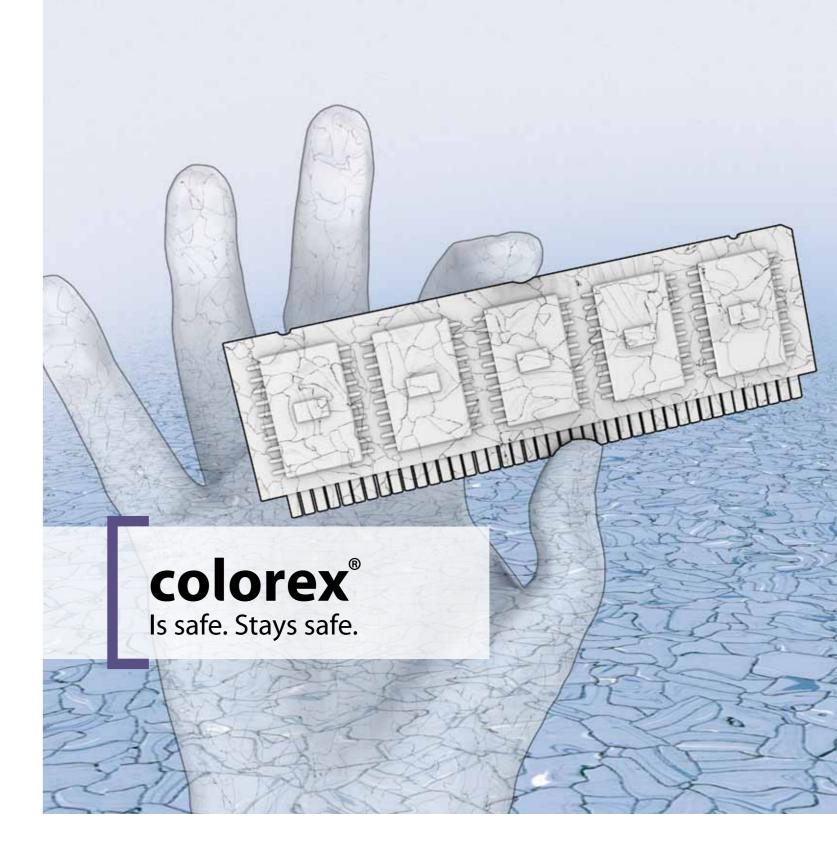




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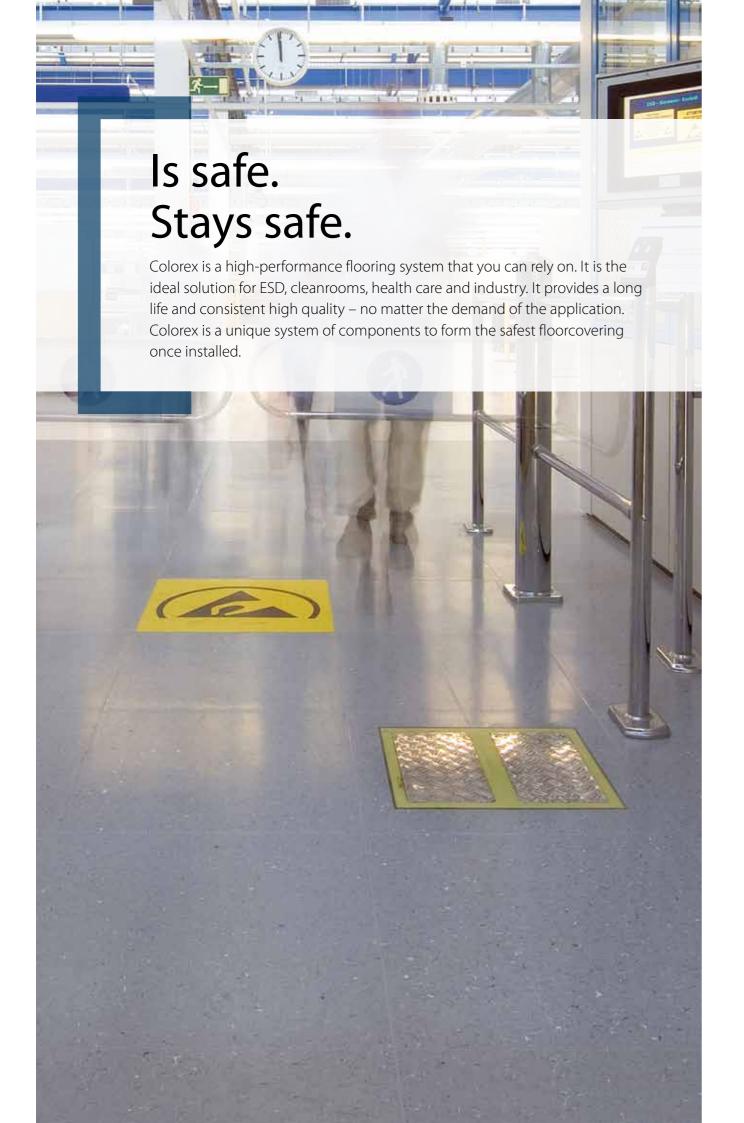






creating better environments





The right choice for a flooring system can enhance your interiors with innovative and beautifully designed products. However, for some applications your decision cannot be made on looks alone and the flooring you choose must also comply with the complex flooring requirements for technical areas.

#### Just be sure

Forbo Flooring has experience in every kind of flooring. You can just be sure that you are making the right choice when it comes to Colorex. It is the best known brand in ESD and cleanroom flooring for over 35 years. You do not have to wonder whether it matches your needs, we comply to every standard and norm so you can simply specify the colour you want. The standards of tomorrow are already compliant with the product of today.

#### **Environmental profile**

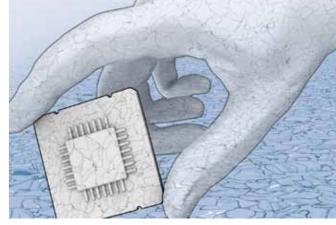
Based on our environmental policy we are constantly seeking for improvements to follow our compliant plus strategy which goes beyond official regulations. Our Colorex collection contains 15% post-industrial recycled content, we do not add any listed chemicals to produce our products.

### The **7**certainties of Colorex

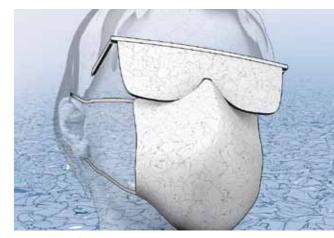
ESD flooring, Cleanrooms and Pharma, Operating theaters, Industry or Datacentre, Colorex is the right floor with the right proporties; especially made for these purposes.

#### We offer:

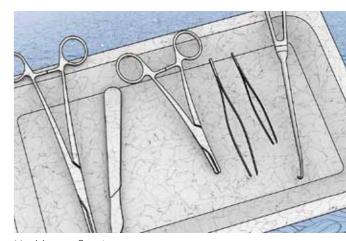
- 1 A full match and exceeding all ESD and cleanroom standards
- **2** Life time conductivity warranty
- 3 The highest hygienic properties, high density and porefree
- 4 Unique dimensional stability
- **5** The advantages of low plasticiser content, resulting in an extreme low emission
- **6** Full repairability and stain removal
- **7** Resistance to heavy load



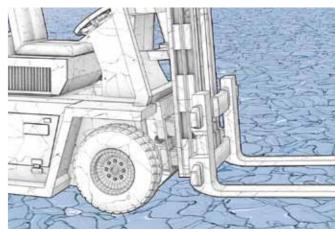
ESD flooring



Cleanroom flooring



Health care flooring

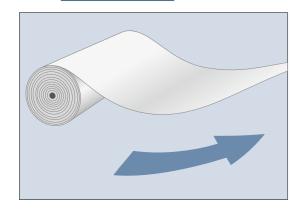


Industrial flooring

## We start where others stop

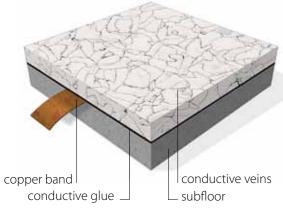
We make tiles in order to ensure consistent and unique properties and to overcome problems that can be fatal like emission, shrinkage and diminishing of conductive properties. Tiles can be installed more quickly and easily than sheets and with less waste, especially in small and medium areas or rooms with irregular shapes.

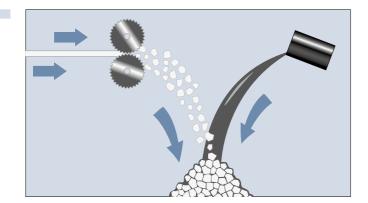
Our production process produces a material of superior quality with an extremely high and uniform compression. The easy-clean surface is pore free, making it suitable for the most stringent hygiene requirements, right up to certified cleanrooms.



The proces starts as a sheet but Colorex is only available in tiles and not without a reason. We are the only manufacturer of ESD and cleanroom flooring that can make a product that has advantages of both tiles and sheet in one product.







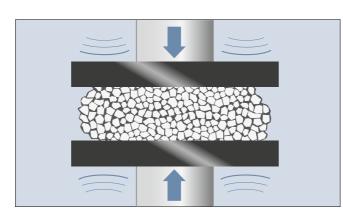
#### Step 1: Cut and conductive coatings

Cutting vinyl sheet into small chips, which are then coated with a conductive substance.



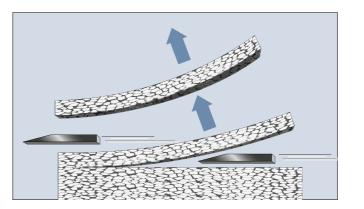
#### **Advantages**

- The chips mix creates the unique electro disappative properties
- The chips guarantee a longlife conductivity independently from humidity and temperature



#### Step 2: Highpressure production

By applying very high pressure and a high temperature, these coated chips are then compressed into solid blocks of homogeneous material.



#### Step 3: Splitting and surface treatment

The extremely compressed blocks are cut into tiles.



- Take a look at the semi-finished product and you'll see that the conductive coating forms a dense network of
- These are the 'conductor paths' that enable safe electrostatic discharge through the whole thickness of the tile



#### Advantages

- The tiles are easy to work with and make a quick installation possible even without down time
- The easy-clean surface is pore free, making it suitable for the most stringent hygiene requirements, right up to certified cleanrooms
- Colorex is a highly compressed tile with a compact surface

## The Colorex system

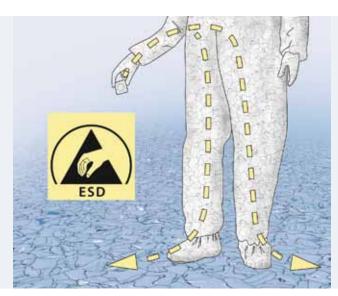
Colorex can be used everywhere. It can be installed by directly glueing it on concrete, as part on top of a raised floor panel or as a loose lay tile system. All versions come in two levels of conductivity EC Highperformance and SD Performance. The loose lay version additionally has an anti static (basic plus) and slip resistant (R11 plus) version to complete the high tech solutions offer.

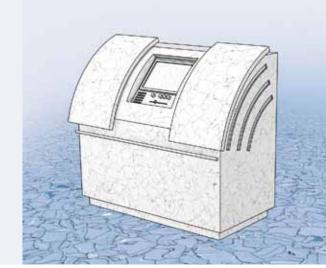
	Highperformance	
	Colorex EC	Colorex EC plus
Functionality	Permanently conductive	Permanently conductive
Description	Permanently conductive floor, connection between tiles through conductive adhesive and connected to earth through copper strip. Compliant to person-shoefloor-system requirement.	Permanently conductive floor, connection between tiles through dovetails and connected to earth with copper strip. Compliant to personshoefloor-system requirement.
Application area	New built ESD facilities, cleanrooms, pharmaceutical laboratories, production sites and operating theatres.	Renovation of ESD facilities, cleanrooms, pharmaceutical laboratories and production sites. Suitable when down time or raising moisture are critical.

	Performance	
	Colorex SD	Colorex SD plus (on request only)
Functionality	Permanently static dissipative	Permanently static dissipative
Description	Permanently static dissipative floor, connection between tiles through conductive adhesive and connected to earth through copper strip.	Permanently static dissipative floor, connection between tiles through dovetails and connected to earth with copper strip.
Application area	New built laboraties clean rooms, pharmaceutical laboratories, production sites and operating theatres.	Renovation of laboraties clean rooms, pharmaceutical laboratories and production sites. Suitable when down time or raising moisture are critical.

	Standard	
	Colorex Basic (on request only)	Colorex Basic plus
Functionality	Resistant / repairable	Resistant / repairable
Description	Excellent chemical resistant, floor can be repaired in case of heavy damages.	Excellent chemical resistant, floor can be repaired in case of heavy damages.
Application area	New built shops, stores, warehouses. Areas with high traffic needing daily intensive cleaning.	Renovation of shops, stores, warehouses. Areas with high traffic needing daily intensive cleaning. Suitable when down time or raising moisture are critical.

## Colorex EC Highperformance

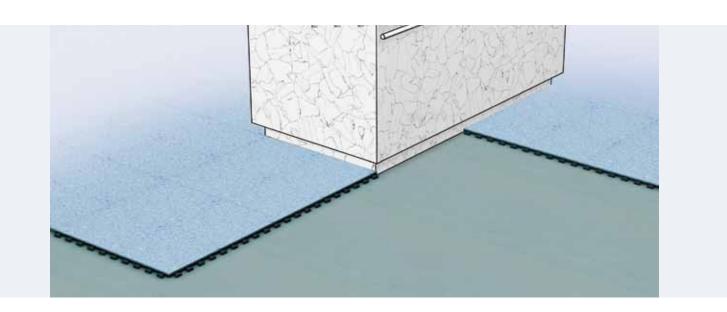




## Colorex SD Performance

Colorex EC plus Highperformance

Colorex SD plus (only available on request)





With Colorex EC static charges flow easily through the dense network of tiny conductive veins in the whole thickness of the tile. These are collected by the conductive adhesive and securely discharged to earth via the copper strip. It's a completely natural system that needs no volatile, chemical anti-static additives to aid conductivity. The conductivity is completely

independent from moisture in the air.

**Functionality:** Permanently conductive

**Description:** Permanently conductive floor, connection

between tiles through conductive adhesive and connected to earth through copper

strip. Compliant to person-shoefloor-system

requirement.

**Application** ESD facilities, cleanrooms, pharmaceutical

**areas:** laboratories, production sites and operating

theatres.

Colorex SD enable safe electrostatic discharge through the whole thickness of the tile. The conductive coating forms a dense network of tiny black veins.

**Functionality:** Permanently static dissipative

**Description:** Permanently static dissipative floor,

connection between tiles through conductive adhesive and connected to

earth through copper strip.

**Application** New built laboraties clean rooms,

**areas:** pharmaceutical laboratories, production sites

and operating theatres.

Renovating an industrial flooring can be a very costly and labour intensive endeavour. The downtime needed to move or disassemble heavy production equipment and the cost of immediately accessible. There's no need for special subfloor a complex subfloor renovation can begin to add up before treatments or preparations. The tiles connect to each other work on installing the new floor has even started. Colorex EC plus is a high performance floor covering system because they have a genuine Colorex surface you can still

expensive preparatory measures and downtimes are not acceptable, it can be installed without interruptions and is using a unique dovetailing system that remains hidden. But that consists of loose lay tiles. Suitable for applications where take advantage of its proven features and benefits.

**Functionality:** Permanently conductive

**Description:** Permanently conductive floor, connection

between tiles through dovetails and connected to earth with copper strip. Compliant to person-shoefloor-system

requirement.

**Application** Renovation of ESD facilities, cleanrooms,

areas: pharmaceutical laboratories and production sites. Suitable when down time or raising

moisture are critical.



## Finishing solutions

In highly sensitive health care areas, and anywhere that has strict hygiene requirements, it's vital that floor-to-wall transitions are water-tight, perfectly hygienic and aesthetically pleasing. Our integrated coving system creates a perfect seal for these critical areas using the same Colorex material.

#### Cove skirting strip in rolls

The cove skirting is cut and welded from the original colorex tiles assuring quality from wall to wall.

12,2 m long, standard height 15 cm (5 cm on the floor plus 10 cm up the wall)



#### Pre-formed internal and external corner pieces

The corners are moulded from original Colorex and reinforced to assure the best possible result and making sure the most critical parts are manufactured in a controlled environment. Welding is not required. Including resin reinforcement on the back.



#### **Skirting for Colorex plus**

There are two types of skirtings available for our Colorex plus versions. Either a full hygienic solution with tailor made coving or a solution to prevent raising moisture.

Radius 20 mm



### Colorex ramp

Colorex plus may be installed as a working island or may not end on a wall. Access ramps are available in grey, in colour matching or as signal colours on request.

#### Colorex welding rods

All the accessories on this page and Colorex tiles can be welded with Colorex welding rod, available in matching colours.

In standard 4 mm diameter and 100 m coils



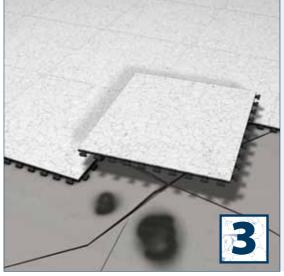








Colorex on top of a raised floor panel



Colorex as loose lay tile

#### 1. Colorex glued to the floor

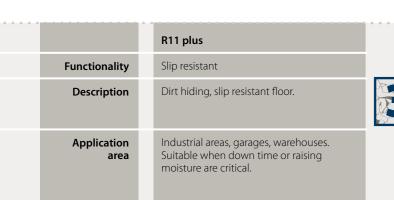
Colorex can be installed on a concrete subfloor. This is often done using a conductive primer first after which copper tape and conductive adhesive is applied. When Colorex is placed on top the copper tape drains the electrical charges to the earth where is will be connected to. When conductivity is not is not necessary as long as the floor is flat. Colorex plus required the normal primer and adhesive is used. Installed on concrete Colorex can withstand heavy loads like fork lift trucks without damaging the floor itself. Welding of tiles is optional for ESD areas. For cleanrooms it is a requirement. For humidity when needed while in use. The Colorex plus tiles these areas it is good to know that since Colorex tiles do not shrink, a correctly installed weld will never open up.

#### 2. Colorex on top of a raised floor panel

Often Colorex is placed on a raised floor panel that is used in cleanrooms or datacenters. Due to the strength and unique properties of Colorex raised floor manufacturers can make every possible construction with Colorex depending the area of use. Since Colorex has extreme low emission and a high density it can be perforated for air flow systems that are often used in combination with raised floors. Heavy traffic and reparability without loosing visual appearance make Colorex stand out against any other alternative.

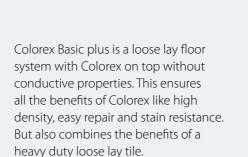
#### 3. Colorex as loose lay tile

Colorex plus is a high performance floor covering system consisting of loose lay tiles for all those areas of application where expensive preparatory measures and downtimes are simply excluded. A specific treatment or preparation can be installed without stopping or disturbing current activities and is immediately accessible. With its honeycomb structure at the bottom Colorex plus can even ventilate are connected together by a unique dovetailing system that remains hidden under the surface and they are featuring a genuine Colorex surface with its proven features and benefits. Colorex plus is available as an Electrical Conductive (EC) Highperfom version. On request it can be ordered as a Static Dissipate (SD) perform version. Additionally there is an antistatic version for non conductive installations. On top of this the system is completed with a slip resistant tile that can be connected to all the types of Colorex plus tiles for heavy duty areas. With Colorex plus specially developed ramps and skirtings can be used to form a complete solution for any type of situation. Even fork lift trucks form no problem for Colorex plus.



# Colorex Basic plus

**Colorex Basic** (only available on request)



**Functionality:** Resistant / repairable

**Description:** Excellent chemical resistant, floor can be

repaired in case of heavy damages.

**Application** Shops, stores, warehouses. Areas with high areas: traffic needing daily intensive cleaning.

Enhanced slip resistance, R11 plus have a strong surface embossed structure and have a high slip resistance R11 to meet safety requirements.

**Functionality:** Slip resistant

R11 plus

**Description:** Dirt hiding, slip resistant floor.

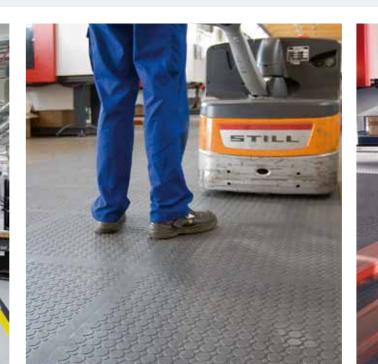
**Application** Industrial areas, garages, warehouses.

**areas:** Suitable when down time or raising moisture

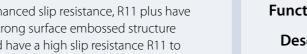
are critical.

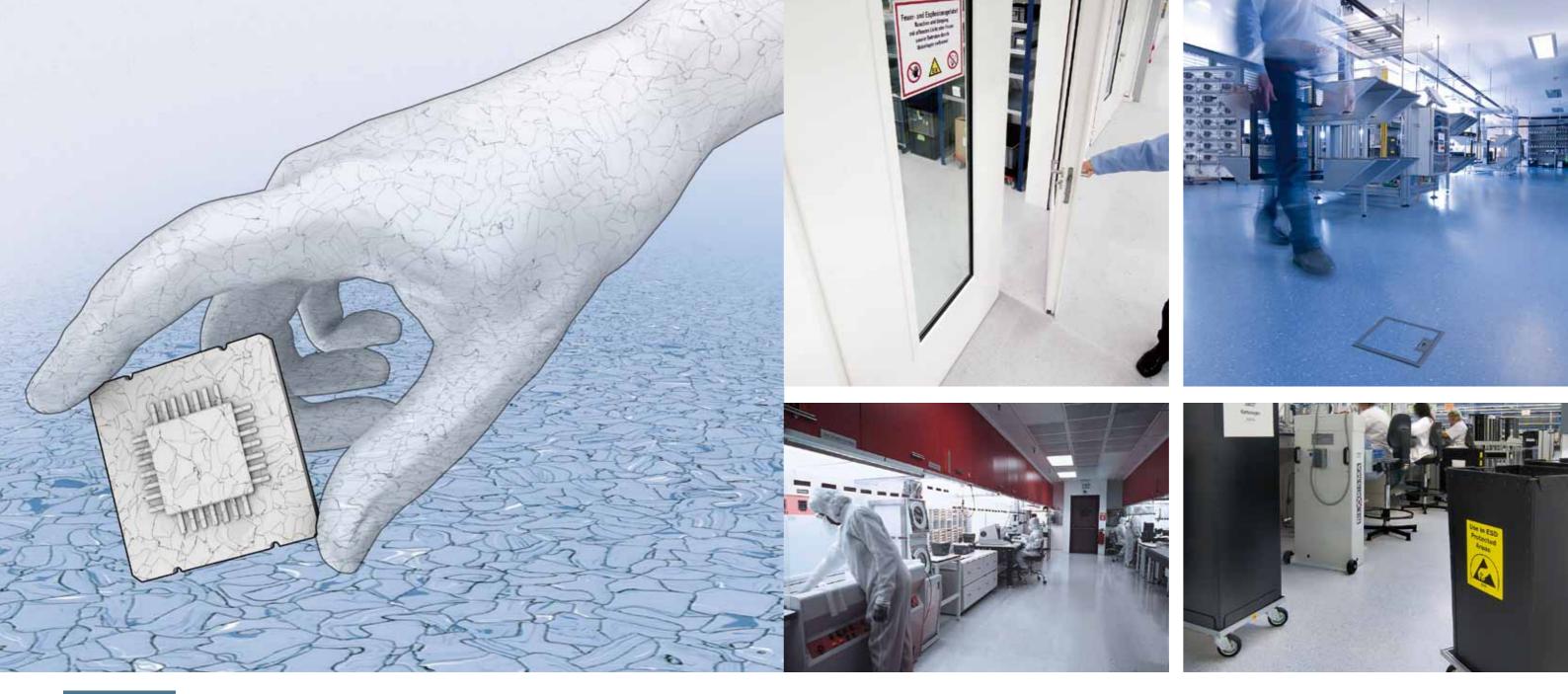












# ESD flooring that's future proof





Electrostatic
Discharge Flooring
(ESD)

#### **Products:**

Colorex EC

#### The right floor makes the difference

Reducing the generation of electrostatic charges is the main purpose of control measures in ESD protected areas (EPA). In such areas like electronics assembly, mechatronics and datacenters the right floor covering plays a crucial role. It does not only drain electrostatic charges from personnel and equipment, but it also reduces the generation of charges there where they occur, at the interface between the shoe soles and the floor.

#### Consistent conductivity throughout life time

The unique construction of Colorex EC and Colorex SD, completely free from volatile antistatic chemicals, ensures a permanent and stable conductive performance of the floor over its entire life time, totally independent from humidity and temperature.

#### We guarantee more than resistance

Forbo Flooring guarantees highest safety. We measure the electrical resistance of every single production batch of Colorex EC and Colorex SD and deliver upon request a test report clearly showing the results of our measurements.

#### Low body voltage generation

It is a natural fact that anybody can accumulate electrostatic charge just by simple motion or walking. By wearing the appropriate ESD shoes however, these charges will be securely drained through the dense network of conductive veins of Colorex EC and Colorex SD.

# Cleanroom flooring for the highest standards





#### Products:

- Colorex EC /-plus
- Colorex SD /-plus

In cleanroom environments in the pharmaceutical, life sciences and manufacturing industries, airborne particles can be a major source of contamination. Not only can they cause yield loss, the particles can also lead to corrosion and product degradation. ISO standards and cGMP regulations for air purity require you to comply by presenting consistent results that can be verified on a regular basis.

Colorex can help here too. Ideal for cleanrooms in these kinds of environments, it satisfies the strictest requirements for particle release behaviour, helping to reduce any threat of contamination. What's more, following a comprehensive programme of testing, its suitability in cleanroom applications has been certified by the renowned Fraunhofer IPA Institute in Germany.

#### Colorex SD/EC was tested for the following:

- Airborne particle emission test and cleanroom suitability (ISO 14644-1)
- Outgassing analysis and classification (ISO 14644-8)
- Adhesion of microorganisms
- Assessment of microbial metabolic potential (ISO 846)
- Chemical resistance (ISO 2812-1)
- Cleanability rating (VDI guideline 2083 Part 4)
- GMP classification complying to Class A





# Hygiene and safety for sensitive hospital areas



Pore-free surface prevents from bacteria and moulds



#### **Products:**

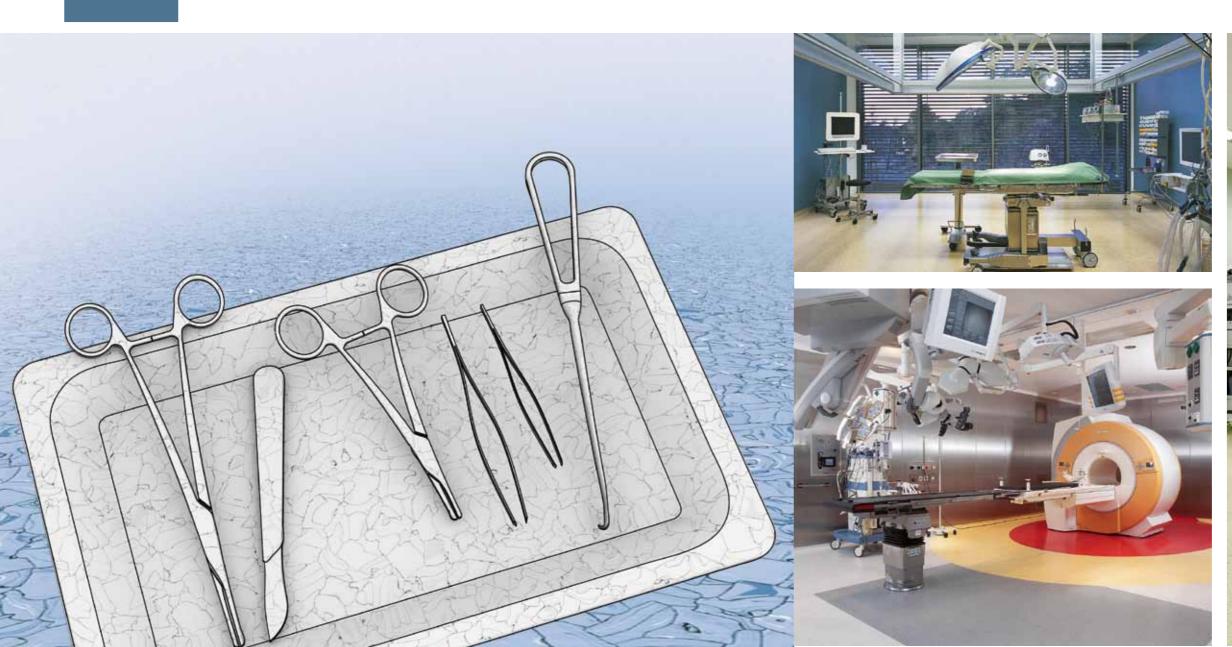
- Colorex EC /-plus
- Colorex SD

#### A demanding area

In sensitive hospital areas such as operating theatres, intensive care units and imaging diagnostic facilities, flooring presents its own unique challenges. Not only must it comply with stringent hygiene regulations to help prevent hospital-acquired infections, it must also demonstrate that it meets any necessary safety requirements. And most importantly, it must prevent any electrostatic discharges as these can cause malfunctions, or even failures, in highly sensitive medical equipment and devices.

#### The highest standards of hygiene

Colorex satisfies all these requirements. Its conductive properties allow you to avoid the negative effects of an accumulation of static electricity. At the same time, the compact, pore-free surface is unfriendly to bacteria and moulds, helping you to maintain the highest standards of hygiene. And thanks to its excellent stability and consistent high quality, its aesthetic appeal won't be tarnished by the regular cleaning and disinfecting cycles that are imperative in hospital environments. Colorex is highly stain resistant helping to ensure your investment will still look good in years to come.





## Industrial flooring for wear intensive areas





### Products:

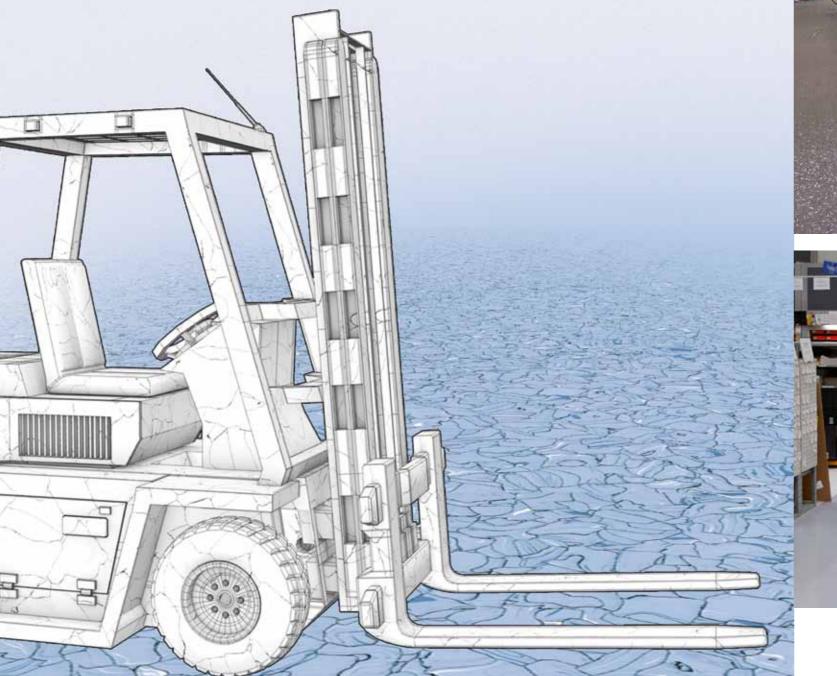
- Colorex SD /-plus
- Colorex Basic /-plus
- R11 plus

#### Suitable for the toughest settings

Industrial environments present their own flooring problems, particularly in areas with high wear and tear. Our Colorex high performance floor covering systems are designed for all industrial areas, including the toughest of settings. Cut from a homogeneous, solid block of highly compressed material they have a high vinyl content and a well balanced amount of mineral filler for optimum performance.

#### Colorex offers you:

- High mechanical resistance and wear with no need for factory coating or additional surface hardening treatments
- Excellent chemical resistance thanks to the pore-free surface and a remarkably low percentage of plasticiser
- A 100 % repairable and restorable solution that leaves no trace of abrasive treatment methods





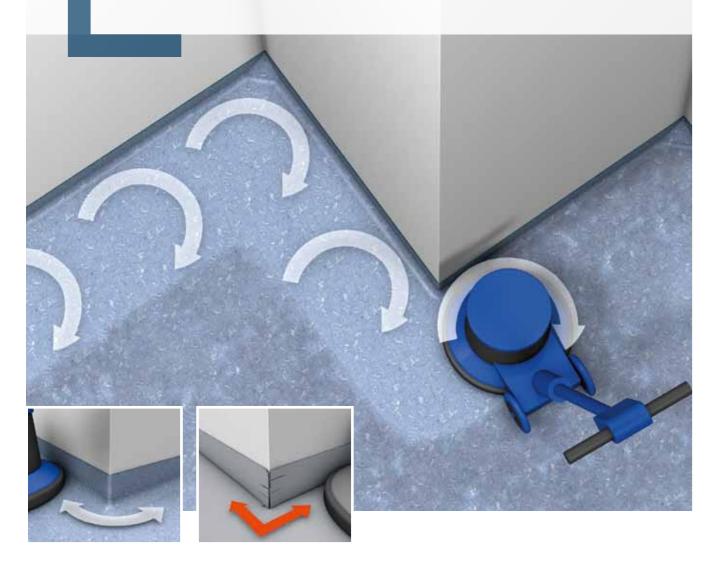






## Inner and outer corners – hygienic and aesthetic

In sensible areas close wall plinths do not only look nice but are in many cases also a must from a hygienic point of view.



Corners and plinths are depending on quality, inferior products are dirty before you know it and show traces of bacteria. This is not the case with Colorex as it is thermally bonded. This multiple usable accessory offers you for such problem areas the perfect closing solution and with that the absolute freedom of the room design.

The Colorex accessories have amongst others preformed inner corners with a great radius which is linked to the size of the cleaning pads. This way the dirt collection of difficult to reach areas is prevented.

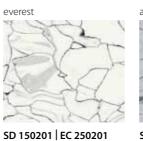
optimally combined with constructions like unequal walls.

## Colorex collection





SD 150240 | EC 250240

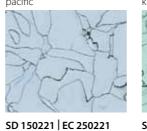




EC plus 621005

Basic plus 611005

SD 150206 | EC 250206









SD 150213 | EC 250213 EC plus 621013 Basic plus 611013

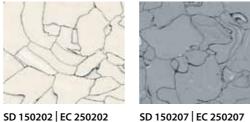






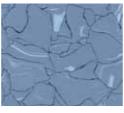
SD 150215 | EC 250215





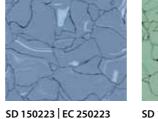
EC plus 621007

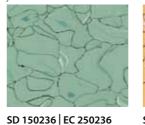
Basic plus 611007



EC plus 621022

Basic plus 611022





SD 150234 | EC 250234



SD 150219 EC 250219



SD 150212 | EC 250212

R11 plus

Preformed outer corners are prevented from tearing because of their special construction. The inner reinforcement prevents that the outer corners tear or break, due to high mechanical pressure, e.g. the rotation of a cleaning machine. While Colorex SD and EC are homogeneous material without additional backing material or strengthening layers it can be The well thought of accessories make the cleaning regime easy and guarantees a reliable durability - a real hygiene

EC plus 621004

Basic plus 611004

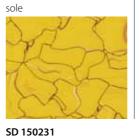




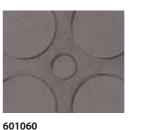
SD 150208 EC 250208



SD 150224 | EC 250224



SD 150232 | EC 250232



The quality and environmental management system of Forbo Giubiasco S.A. (CH) where Forbo Colorex is manufactured are certified in accordance

Technical specifications Colorex

Compliant

2.0 mm / 3.0 mm\*

615x615 mm

 $5 \times 10^4 \leq R \leq 10^6 \, \Omega$ 

 $R < 3.5 \times 10^7 \Omega$ 

total < 1 ug/cm<sup>2</sup>

3.2 kg/m<sup>2</sup>

0.05%

0.035 mm

Group M

no effect

2 dB

B<sub>e</sub>-s1

0.28 W/(m·K)

10.5 mm

608x608 mm

 $2.5 \times 10^4 \le R \le 10^6$ 

 $R < 3.5 \times 10^{7} \Omega$ 

total < 2 µg/cm<sup>2</sup>

12.4 kg/m<sup>2</sup>

0.28 W/(m·K)

10.5 mm

608x608 mm

43

n.a.

n.a.

total < 2 ug/cm<sup>2</sup>

12.4 kg/m<sup>2</sup>

n.a.

0.11 mm/m°C

Powered pallet truck and forklifts: total weight up to 2.5 t with

Static loads: 50 kg/cm<sup>2</sup> - dynamic loads: 90 kg/cm

≥6

12 dB

< 2 kV

B<sub>e</sub>-s1

 $\mu = 0.60$ 

0.28 W/(m·K)

10.5 mm

11.4 kg/m<sup>2</sup>

n.a.

< 2 kV

B<sub>e</sub>-s1

0.28 W/(m·K)

Compliant

2.0 mm / 3.0 mm\*

615x615 mm

43

 $10^6 \leq R \leq 10^8\,\Omega$ 

n.a.

total < 1 µg/cm

Excellent

3.2 kg/m<sup>2</sup>

0.035 mm

Group M

no effect

≥ 6

B<sub>e</sub>-s1

 $\mu = 0.60$ 

0.28 W/(m·K)

ISO 24346 / EN 428

ISO 10874 / EN 685 ISO 10874 / EN 685

IEC 61340-4-1

ESD STM 97.1

IDFMA M11-99

AgBB guidelines

ISO 26787 / EN 423

ISO 23997 / EN 430

ISO 23999 / EN 434

ISO 4918 / FN 425

EN ISO 140-8

ESD STM97.2

EN 13501-1

EN 12524

All Colorex products meet the requirements of FN 14041

\*\* Product also tested to ASTM. Results available on request

DIN 51130

EN 1081 (100V) ANSI/ESD 7.1



CE marking

Electrical resistance

Electrical resistance in combination with ESD Shoes

Total TVOC 28 days

Chemical resistance

Thermal dilatation coefficient

Resistance to loads (performance may vary, subject to local conditions

Castor chair continuous use

Impact sound reduction

Body voltage generation, with appropriate ESD shoes

Reaction to fire

Thermal conductivity

\* Available on request

Residual indentation

Abrasion resistance

Bacteriostatic

