

# Guide to Cleanroom Flooring Design



Cleanrooms are essential in a growing number of industries to safeguard manufacturing operations and the quality of components, ensure the integrity of scientific research and maintain high levels of hygiene in healthcare settings. Some of the industries where you will find cleanrooms include **pharmaceuticals, manufacturing and high technology.**

## What is a cleanroom?

A cleanroom is a regulated space that is designed to control contamination such as biocontamination, airborne particles and vapours.

Regulations and standards specify the quantity of airborne particles of a certain size that are allowed within 1 m<sup>3</sup>.

Cleanrooms also control other environmental factors within the room, including **temperature, biocontamination (bacteria), air pressure, conductivity, lighting and vibrations.**

## Sources of contamination

- surfaces (e.g. walls, ceilings and floors)
- paints
- coatings
- debris and dust
- equipment and supplies
- hair and skin oils
- perfume
- clothing fibres

## What are the relevant standards?

ISO 14644, which is adopted in Australia standards as **AS/NZS ISO 14644 “Cleanrooms and associated controlled environments”**, sets out the international standards for cleanrooms for the manufacturing sector.

**Good Manufacturing Practice (GMP)** is another commonly referenced standard used mainly by medical and pharmaceutical manufacturers to ensure a controlled cleanroom environment. There are different codes of GMP, depending on the type of therapeutic good, such as the GMP for Medicines, and the GMP for Human Blood and Tissues.

## Importance of cleanroom flooring

- The floor is the primary surface on which contaminants can build up.
  - Floors can release particles and outgas volatile gases.
  - The floor can contribute to the accumulation and discharge of static electricity that can damage electrostatic-sensitive devices.
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## Specifying cleanroom flooring materials

When specifying flooring materials, cleanroom requirements should be defined in the early stages of the project. This will include operational and maintenance requirements, how much traffic and wear the floor will be subject to, installation considerations and aesthetics. All these factors are necessary to meet the measures used to control particles in accordance with ultra-clean ISO standards.

## Key product attributes

- Cleanability
- Chemical resistance
- Biocontamination control
- Airborne particle release control
- Temperature resistance
- Weight, loads and intensity of traffic
- Control over Electrostatic Dissipative (ESD)\* phenomena
- Fire safety
- Third-party certification and quality
- Product ergonomics (comfort underfoot)

\*ESD materials are designed to prevent the build up of static electricity, thus mitigating the risk of static discharge in highly controlled cleanroom settings.

## Cleanroom Flooring

A Specifier's Guide

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## Cleanroom flooring made easy with Gerflor

As experts in PVC floor coverings for industry and specific use for 70 years, Gerflor develops products that meet extreme requirements in terms of safety, quality and resistance for industrial uses. Thanks to their research and development department, Gerflor offers their clients innovative solutions to meet their industrial requirements while adhering to Australian and international regulations.

Gerflor has a range of High Traffic GTI® vinyl cleanroom flooring solutions offering heavy traffic resistance and outstanding chemical resistance.