



# Mitie Cleaning Services Delivering Cleanroom Environments

## What is a cleanroom environment?

Cleanroom environments, or cleanrooms, are controlled environments where mitigation measures are taken to reduce particle contamination, such as dust and airborne microbes, per cubic meter. Cleanroom provisions also include control over other factors such as humidity, temperature and pressure. Typically, cleanrooms are found within scientific research or manufacturing environments but can be implemented anywhere that particles can adversely affect the processes conducted.

Depending on the classification, cleanrooms can require the use of airlocks to enter and exit, as well as a range of personal protective equipment. For highly controlled environments, entrants must wear full coverage suits to prevent particulate contamination from the skin and hair escaping into the environment, however, for less stringent needs a gown, hairnet, shoe covers and gloves may be sufficient.



## Cleanroom classification

Cleanroom requirements can differ greatly depending on the specification and work conducted at the premises. Mitie Cleaning Services cater for a wide range of cleanroom environments, from ISO 1 to 9 according to the ISO 14644-1 ranking system. The ranking classifies cleanrooms according to the number and size of particles permitted per volume of air.

ISO CLASSIFICATION NUMBER	Maximum concentration limits (particles/m <sup>3</sup> of air) for particles equal to and larger than the considered sizes shown below					
	≥ 0.1µm	≥ 0.2µm	≥ 0.3µm	≥ 0.5µm	≥ 1.0µm	≥ 5.0µm
ISO CLASS 1	10	2				
ISO CLASS 2	100	24	10	4		
ISO CLASS 3	1,000	237	102	35	8	
ISO CLASS 4	10,000	2,370	1,020	352	83	
ISO CLASS 5	100,000	23,700	10,200	3,520	832	29
ISO CLASS 6	1,000,000	237,000	102,000	35,200	8,320	293
ISO CLASS 7				352,000	83,200	2,930
ISO CLASS 8				3,520,000	832,000	29,300
ISO CLASS 9				35,200,000	8,320,000	293,000

## Where do we deliver cleanrooms?

We work within a range of sectors such as pharmaceutical, scientific research, the public sector and more who require our expertise within cleanroom environments. An example is outlined below:



mitie

CLEANING



## The Customer

A renowned scientific research company.

## The Challenge

The requirement needed a tailored cleaning regime to meet industry standards from offices, kitchens, toilets, and warehouses, through to over 30 clean rooms of various classifications, including four that required leading technology and production standard ISO Class 1.

## The Solution

Mitie implemented efficient and effective processes, such as the two bucket system and 15% overlap, to ensure the cleanrooms were up to standard. With routine cleans scheduled daily, the four high spec rooms were meticulously cleaned by our highly trained biotechnicians.

Before being permitted to enter the room, cleaning operatives attended stringent testing sessions and made to pass an exam on protocols to ensure they took appropriate measures and knew how to conduct the clean, for example, moving slowly to not disrupt the HEPA filters and the strict processes for putting on removing cleanroom clothing.

This was done in a mock environment to enable the team to practice prior to entering the cleanroom itself.

In addition, we implemented a mixed approach to products used, to ensure prolonged effective cleaning of surfaces, switching products on a regular basis to prevent resistance. The products chosen were done so specifically for cleanroom environments due to their strong antibacterial properties, preventing any particles from spreading within the environment.

**Mitie agreed with the customer to have antimicrobial tests conducted weekly to ensure that the room was consistently meeting the required standard.**



## What services do we offer to cleanrooms?

Cleanroom environments require a meticulous cleaning process to ensure that areas meet the strict requirements needed to conduct work on site. Through precise methods, Mitie biotechnicians clean all surfaces in a cleanroom, including ceilings and floors, to ensure all surfaces are suitable for the environment.

Utilising flat mops that are non-woven and non-shed, teams will conduct thorough cleaning regimes, aimed at meeting the standard of a 1 in 100 particle cleanroom, to ensure that no matter the specification of the environment the area will always meet the criteria set out by a customer. To ensure the best surface clean, the teams always use the 15% overlap method. This ensures that every surface area will be covered and particles removed effectively.

As part of the process, teams utilise the two-bucket system. Bucket one is used for the solution and purified water; to ensure no additional particles or bacteria are transferred from using regular tap water. Bucket two is then used for waste water. Managing the system in this way is the most efficient and effective way to ensure areas are cleaned to standard.

Implementing specific products, our teams utilise strong antibacterial agents to ensure the maximum removal of bacteria and particles. To ensure the correct use, our biotechnicians are all trained and tested in a practice environment before being permitted to undertake work inside a cleanroom environment.

In conjunction with HEPA (High Efficiency Particulate Air) filters, used to filter the air in cleanrooms to meet the high standards, Mitie Cleaning Services ensure that surfaces are cleaned to standard and pass any relevant microbial tests conducted.

One of the ways we test the level of microbial contamination is by placing settle plates in the most at risk locations for a set period of time, before removing them and allowing them to incubate. This enables teams to count and quantify the number of micro-organisms present in the tested environment, and ensures that the strict cleanliness requirements of these locations continue to be met.

### Find out more.

For more information on our cleanroom environments cleaning, or other cleaning services, get in touch.

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