Protective Apparel
Key Selection Criteria

Working in controlled environments requires the highest degree of conscientiousness and expertise, as well as high-quality products for contamination control. Protective apparel from the Fisher Scientific channel can help ensure that your controlled environments always stay up to the required cleanliness and aseptic levels. We provide a full range of disposables for controlled environments, including face protection, coveralls, coats, hoods, sleeve protectors, and boot covers, allowing head-to-toe coverage. To cover all applications, the range is available with sterile and non-sterile options.

Here are the top selection criteria to consider:

Cleanroom Classification

The recommended practice guideline IEST-RP-CC003.4 addresses the garment system considerations for cleanrooms and other controlled environments. With the personnel working in the controlled environment being the biggest source of contamination, following the best gowning practice is a critical aspect of cleanroom contamination control.

Guidance for the selection of garments or apparel and accessories according to cleanroom classifications

Apparel	ISO EN 14644-1 2015 Classification Number						
	ISO 1 & 2	ISO 3	ISO 4	ISO 5	ISO 6	ISO 7	ISO 8
Hoods	O	✓	✓	✓	O	O	O
Coveralls	✓	✓	✓	✓	✓	O	O
Overboots	✓	✓	✓	✓	✓	O	O
Overshoes	×	×	×	×	O	✓	O
Undergarments	✓	✓	✓	✓	O	O	O
Coats	×	×	×	×	O	✓	✓
Facemasks	O	✓	✓	✓	O	O	O
Gloves	✓	✓	✓	✓	O	O	O
Bouffant Caps	O	✓	✓	✓	✓	✓	✓

Key	✓	Recommended	O	Application Specific	×	Not Recommended

Apparel	Description
Coveralls and Coats	To provide total body coverage in order to protect products, processes, and operators
Hoods	To cover the wearer's head and prevent dissipation of hair
Facemasks	To provide full coverage of mouth and nose and protect against aerosol droplets and other contaminates
Sleeves	To protect the forearms from splashes and cover the area between gloves and coveralls
Overshoes/Overboots	To cover the feet of operators and visitors, to avoid introducing contaminants from external areas

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Material

The recommended practice guideline IEST-RPCC003.4 garment system considerations for cleanrooms and other controlled environments list six types of non-woven fabrics for use in controlled environments. When selecting garments for cleanroom use, depending on the specific application, the IEST standard recommends certain critical fabric properties:

- **Cleanliness and cleanability**
- **Electrostatic properties**
- **Biological properties**
- **Durability**
- **Comfort**
- **Opacity**
- **Particle filtration efficiency**
- **Microbial penetration**
- **Chemical compatibility**
- **Fluid resistance**

Additionally a proper seam structure is key to contain particles and fibers inside the garment and avoid passage to the outside.

Sterility

As for gloves, sterile cleanroom garments should be processed in certified cleanrooms and packaged appropriately to always assure sterility when used. Garments can be sterilized by gamma irradiation or any other appropriate method in order to achieve an acceptable sterility assurance level (SAL). The common acceptable level is a SAL of 10^{-6}, which is regularly used for the terminal sterilization of medical devices. At this level the probability of finding a non-sterile unit is 1 in 1,000,000.