








>> TECHNICAL RELEASE



WHAT'S THE DIFFERENCE?

Disposable and reusable cleanroom garments do the same job, or do they?

The biggest cause of contamination in cleanrooms are people so it's critical that the right garments are worn to maintain the cleanroom's credentials and performance. When it comes to selecting cleanroom garments for life sciences applications, it is important to recognize that while reusable garments and disposable garments fulfill the same purpose and need, there are fundamental differences which need to be highlighted so you can make an informed choice. Significant differences in the material and processing of sterile cleanroom garments make them completely different. By selecting the appropriate garment for the application, employers can better protect their valuable products and processes from harmful particles and ions; improve overall product integrity; and minimize risk as well as protecting their workforce with appropriate PPE.

	BioClean™ Disposable Garments	Reusable Garments
 Goal	<ul style="list-style-type: none"> To protect the product, process and environment from contamination 	<ul style="list-style-type: none"> To protect the product, process and environment from contamination
 Material	<ul style="list-style-type: none"> Polyethylene film outer layer/non-woven polypropylene inner layer 	<ul style="list-style-type: none"> Typically woven polyester
 Post-Processing	<ul style="list-style-type: none"> Sterilized by gamma irradiation once No water used during post processing 	<ul style="list-style-type: none"> Sterilized by gamma irradiation or autoclaving multiple times. (Repeated irradiation cycles can lead to the breakdown of garment fibers and degrade the fabric causing it to relax and the pore-size to become larger) Washed in deionized water
 Repeat Laundering	<ul style="list-style-type: none"> Not applicable - disposable garments are not intended for repeated use 	<ul style="list-style-type: none"> Laundered multiple times
 Bacterial Filtration Efficiency	<ul style="list-style-type: none"> Unable to test due to nature of the material being laminated (not able to generate filtration effect) 	<ul style="list-style-type: none"> <70% dropping to below 40% after several washes
 Chemical Protection	<ul style="list-style-type: none"> TYPE 6 limited protection against liquid spray/splash The laminate also provides a barrier against any chemicals splashed on the garment 	<ul style="list-style-type: none"> Reusable garments do not provide effective protection against chemicals, as these can easily soak through the garment and contaminate the wearer
 Particle Protection	<ul style="list-style-type: none"> TYPE 5 protection against solid particulates Disposable garments are made from spun-bonded non-woven polypropylene laminated with a film of polyethylene. This means any holes between the warp and weft of the fabric are sealed by the laminate coating. This allows comfort and flexibility during use but provides a solid barrier against skin particles, hair, lint and other particles escaping from the garment 	<ul style="list-style-type: none"> Reusable garments act as filters, they are made from woven polyester and have microscopic holes between the warp and the weft, commonly referred to as the PORE-SIZE. The pore size can vary widely due to fabric construction type and manufacturing methods, but is generally significantly larger than 0.5 microns

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 <p>Repairs</p>	<ul style="list-style-type: none"> Not applicable - disposable garments are fully inspected before packing and are not designed to be repaired 	<ul style="list-style-type: none"> The smallest of damage to a reusable garment precludes it from being washed, so it has to be repaired prior to processing or removed from the cycle if deemed 'unfit for purpose'. If this is the case the laundry company will replace the garment on the contract at their discretion, which will potentially involve termination charges (if the garment is being replaced before the end of the contract). The replacement garment then starts its own contract starting the contract cycle from a new date.*
 <p>Rental Agreement</p>	<ul style="list-style-type: none"> Not applicable - no rental agreement, one off payment 	<ul style="list-style-type: none"> Rental contract which can last for 3+ years. Fixed weekly costs to launder all garments each week whether the garments are used or not If garment usage reduces due to reduced production output or staff reductions the end-user still pays the fixed weekly cost for the original number of garments as agreed in the contract (often referred to as the 'process gap') Additional garments requirements are not added to the original contract but start a new contract cycle from the new garment inception date. There could be multiple new garments (new staff, size changes etc) added throughout the year each with a new start date meaning there is no finite end date to the service contract If the end-user wants to terminate the rental contract, due to the additional contracts for new garments added there will always be outstanding residual costs to pay.*

* Contract terms are negotiated between vendors and customers and may vary.

BENEFITS OF SELECTING DISPOSABLE GARMENTS:

- ✓ Mitigation of micro-organism cross contamination risks
- ✓ They can be supplied as and when required
- ✓ End user has the flexibility to adjust the number of garments they need
- ✓ No commitment to complex long-term rental contracts
- ✓ Pay only for the garments used
- ✓ No repair costs
- ✓ Changes to size demographic can be easily addressed
- ✓ Provide higher protection against chemicals and classed as category III PPE
- ✓ Consistent performance and physical characteristics
- ✓ Recycling programmes available via TerraCycle