



Critical Environment Apparel

CleanMax®

High-quality disposable cleanroom PPE to protect the integrity of your environment

CleanMax® Sterility Documentation

Quickly access sterility documentation with a simple scan



CLEANMAX®

Cleanroom Apparel

CleanMax® Applications

ISO Class 4-8 Cleanrooms

Pharmaceutical
Compounding

Controlled Environments

Biomedical Research

Biotechnology and Life
Sciences

Microelectronics

Access sterility certificates
by scanning the QR code
on CleanMax® packaging

Available in clean
manufactured sterile and
non-sterile configurations



CE 2777 UKCA 0321

Available in Clean Manufactured Non-Sterile or
Clean Manufactured Sterile configurations



All Lakeland® CleanMax® Apparel is:

- IEST-RP-CC003 Category I Particle Cleanliness
- Compatible with ISO Class 4-8 cleanrooms and all controlled environments
- Individually-packaged and protective outer bag for ante areas
- Resistant to blood borne pathogens and bodily fluid penetration
- Chemical penetration resistance to oils and bleach



Bound Seams

CleanMax® features bound seams, which are precisely sewn with an additional outer binding. This increases seam strength and provides a better barrier from particulates than simple serged seams.



Tunneled Elastic Wrists

CleanMax® features tunneled elastic for better sealing properties.

Lakeland Industries has spent over 40 years as a leader in protecting people, products, and environments. Our CleanMax® products are composed of a high-quality microporous laminate material that is lightweight, breathable, and impervious to liquids, harsh chemicals, and microorganisms.

Both sterile and non-sterile configurations of CleanMax® meet IEST-RP-C003 Category 1 particulate cleanliness standards and are ready for immediate use in ISO Class 4-8 cleanrooms.

All sterile configurations are gamma radiation sterilized to a 10⁻⁶ Sterility Assurance Level. These garments provide excellent comfort as well as superior protection, so you can easily don and doff your garments to reduce excursions and risk of contamination.



CleanMax® Configurations



CTL191



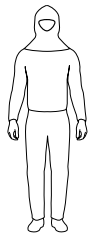
CTL414



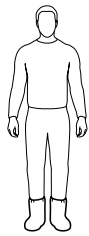
CTL417



CTL428



CTL713



CTL903



CTL850

Clean Manufactured Non-Sterile Garments

Frock – CTL191CM

- Mandarin collar
 - Zipper closure
 - No pockets
 - Tunneled elastic wrists with thumb loops
- Sizes: M – 5X
Case Pack: 30

Coverall – CTL414CM

- Zipper closure
 - Attached hood and boots
 - Tunneled elastic on wrists (with thumb loops), and back half of waist
- Sizes: M – 5X
Case Pack: 25

Coverall – CTL417CM

- Zipper closure
 - Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist
- Sizes: M – 5X
Case Pack: 25

Coverall – CTL428CM

- Zipper closure
 - Attached hood
 - Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist
- Sizes: M – 5X
Case Pack: 25

Hood – CTL713CM

- Covers shoulders
 - One size
 - Ties to customize fit
- Case Pack: 100

Boot Cover – CTL903CMP

- Tunneled elastic top
 - 19" high
 - Non-skid Vinyl sole
- Sizes: S/M, L/XL, 2X
Case Pack: 50 pair

Sleeve CTL850CMP-18

- Bound seams
 - Tunneled elastic
 - Thumb loops
- Size: 18" length
Case Pack: 50 pair

Clean Manufactured Sterile Garments



Clean Sterile

- Gamma irradiation indicator dots on each package
- IPA resistant ink

Coverall – CTL414CS

- Zipper closure
 - Attached hood and boots
 - Tunneled elastic on wrists (with thumb loops), and back half of waist
- Sizes: M – 5X
Case Pack: 25

Coverall – CTL417CS

- Zipper closure
 - Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist
- Sizes: M – 5X
Case Pack: 25

Coverall – CTL428CS

- Zipper closure
 - Attached hood
 - Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist
- Sizes: M – 5X
Case Pack: 25

Hood – CTL713CS

- Covers shoulders
 - One size
 - Ties to customize fit
- Case Pack: 100

Boot Cover – CTL903CSP

- Tunneled elastic top
 - 19" high
 - Non-skid Vinyl sole
- Sizes: S/M, L/XL, 2X
Case Pack: 50 pair

Sleeve CTL850CSP-18

- Bound seams
 - Tunneled elastic
 - Thumb loops
- Size: 18" length
Case Pack: 50 pair

Disposable Cleanroom Suits: Tips for Cleanroom Apparel Selection

Confidence in your cleanroom starts with understanding how to select the right disposable apparel for your unique needs. In just a few minutes, our team of cleanroom industry experts will work with you to determine the type of garment required for your application and environment, and discuss how we can help you protect your team effectively with clean-manufactured garments.

Applications for CleanMax® Cleanroom Apparel

CleanMax® Clean Manufactured Sterile

- Aseptic or Terminally Sterile Cleanroom Environments
- ISO Class 4-8 Cleanroom
- Sterility assurance level of 10⁻⁶ SAL

CleanMax® Clean Manufactured Non-Sterile

- ISO Class 4-8 or below Non-Aseptic Cleanrooms or Controlled Environments

Garment Configurations

Apparel	ISO 8	ISO 7	ISO 6	ISO 5 Non-Sterile	ISO 5 Sterile (Aseptic)	ISO 4	ISO 3	ISO 1 & 2
Hair cover	R	R	R	R	R	R	R	AS
Barrier gloves	AS	AS	AS	AS	R	R	R	R
Facial cover	AS	AS	AS	R	R	R	R	AS
Hood	AS	AS	AS	R	R	R	R	AS
Frock	R	R	AS	AS	NR	NR	NR	NR
Coverall	AS	AS	R	R	R	R	R	R
Shoe cover	R	R	AS	AS	NR	NR	NR	NR
Boot	AS	AS	R	R	R	R	R	R
Typical Frequency of Change*	2X/week	2X/week	3X/week	1X/day	Per Entry	Per Entry	Per Entry	Per Entry

Chart shows Lakeland® garments relevant to ISO 5. Recommendations from IEST-RP-CC003. **R** = Recommended, **NR** = Not Recommended, **AS** = Application Specific

CleanMax® Features and Benefits

Clean Manufacturing Difference

Clean manufacturing helps ensure that operators and PPE are not adding particulates to the environment.

Smooth Storm Flaps

Covering the zipper further helps protect the critical chest and front area of the coverall from potential particle breakthrough.

Secure Thumb Loops

Elastic wrists with thumb loops help secure coveralls and frocks in place to prevent potential skin exposure during wear.

Chemical Penetration Resistance

CleanMax® offers chemical penetration resistance to oils, bleach, and other chemicals.

Premium Packaging for Peace of Mind

CleanMax® configurations are individually packaged and expertly folded to prevent excessive wrinkling and the potential for excessive excursions.



Bound Seams Throughout

CleanMax® features bound seams, which are precisely sewn with an additional outer binding, to provide a better barrier from breakthrough and protection from strike-through.

Smooth Surface Area

CleanMax® is smoother than other brands, meaning particulates are less likely to harbor on the garment's surface.

Cuffed Ankles for Efficient Donning

The cuffed ankle on CleanMax® provides six inches of freedom when you step into your coverall.



Download the Disposable Cleanroom Garment Guide



CleanMax® Physical Properties

Physical Property	Test Method	Units	CleanMax® Sterile Test Results
Basis Weight	ASTM D3776	oz/y ²	1.55 oz/y ²
Grab Tensile MD	ASTM D5034	lbs.	14.07 lbs.
Grab Tensile XD	ASTM D5034	lbs.	8.72 lbs.
Trapezoidal Tear MD	ASTM D1117	lbs.	8.8 lbs.
Trapezoidal Tear CD	ASTM D1117	lbs.	5.0 lbs.
Ball Burst	ASTM D3787	lbs.	19.0 lbs.
Air Permeability	ASTM D737	cfm	<0.562 cfm/ft ²
Water Vapor Transmission	ASTM 96-80	g/m2-24hrs	663.38
Bacterial Filtration Efficiency	ASTM F2101	%	99.999%
Particle Filtration Efficiency	ASTM F2299	%	99.999%

CleanMax® Penetration and Resistance Properties

Physical Property	Test Method	Units	Test Results
Synthetic Blood Penetration	ASTM F 1670	Time to Penetration (> 60 minutes)	Pass
Viral Penetration Resistance	ASTM F 1671	Time to Penetration (> 60 minutes)	Pass
Resistance to Penetration by Blood and Bodily Fluids using Synthetic Blood	ISO 16603	Pressure in kPa	Pass –no strike-through at 20kPa
Resistance to Penetration by Blood Borne Pathogens	ISO 16604	Pressure in kPa	Pass –no strike-through at 20kPa
Resistance to Permeation of Chemotherapy Drugs	ASTM D6978	Minimum Breakthrough Time >240 minutes	Pass*

*Tested drugs include Cisplatin, Cyclophosphamide, Cyclosporin A, Doxorubicin Hydrochloride, Etoposide (Toposar), Fluorouracil, Methotrexate, Mitomycin C, Paclitaxel

CE Testing



CleanMax® Physical Properties – CE Test Data

Physical Property	Test Method	CE Class
Abrasion Resistance	EN 530 method 2	Class 2
Flex Cracking	ISO 7854 method B	Class 4
Trapezoidal Tear (MD/CD)	ISO 9073-4	3 / 2
Tensile Strength (MD/CD)	ISO 13934-1	2 / 1
Puncture Resistance	EN 863	Class 1
Seam Strength	ISO 13935-2	3

CleanMax® Resistance to Penetration by Infectious Agents – CE Test Data

Physical Property	Test Method	CE Class
Resistance to Penetration by Blood Borne Pathogens	ISO 16604	Class 6 of 6
Resistance to Biologically-Contaminated Aerosols	ISO 22611	Class 3 of 3
Resistance to Dry Microbial Contact	ISO 22612	Class 3 of 3
Resistance to Wet Bacterial Penetration	EN 14126 Annex A / ISO 22610	Class 6 of 6

CleanMax® Bulk Packaging!

Bulk packaging in a single overlay bag is available for CleanMax® non-sterile frocks, coveralls, boots, and hoods.

Does Your Cleanroom Apparel Meet Current IEST Standards?

Download our free white paper to find out:



CleanMax® Sterility Documentation with Lakeland



**Accessible 24/7
with a
Simple Scan!**

Why a QR Code?

As a cleanroom operator or quality assurance professional, accessing sterility documentation for your protective clothing should be simple. Lakeland recognized the need for our customers to quickly find and store sterility documentation and developed a simple QR code system for our CleanMax® product.

How Does It Work?

- The three-step approach includes:
- Locating the QR code on any CleanMax® garment label, packaging, or shipping box.
 - Scanning the QR code with a smart phone or tablet.
 - Viewing and printing or saving the sterility document associated with your lot number.

Where Can I Get a Sample?

You can request a sample of Lakeland CleanMax® by calling Customer Service at 800-645-9291 or emailing sales@lakeland.com. Our product specialists are standing by to help you find the right product for your application and would be happy to answer any questions you may have.



lakeland.com | info@lakeland.com

Why Packaging Matters for Your Controlled Environment

Cleanroom PPE packaging is critical to the safety of your staff and the integrity of your controlled environment. It's not enough to have clean and sterile manufacturing processes, the packaging process must be designed to:

- Reduce excursions
- Decrease gowning time and error
- Safeguard against contamination

Lakeland® CleanMax is packaged to ensure maximum garment protection

- Each package features an easy-open strip, allowing for less handling when removing the PPE from packaging.
- Garments are folded and left unzipped to allow for easier donning.
- Garments are individually packaged to maintain cleanliness and avoid excessive wrinkling.
- The packaging can be wiped down with IPA without the fear of the print smearing or creating cross contamination.
- Individually-packaged garments are placed in a sealed, heavy-duty outer bag to protect the integrity of the PPE and to facilitate staged entry into the gown room.
- Coveralls and frocks are positioned so that wearers can only grab the inside of the garment, right below the collar area, eliminating any contamination of the exterior surface.
- As the PPE is pulled out of the packaging, the folded piece will fall easily so that it's ready for the next step of the donning process.
- For customers with less critical environments, bulk packaging is available in a single overlay bag on CleanMax® Clean Manufactured Non-Sterile frocks, coveralls, boots, and hoods.

Availability is Essential

Product availability is critical for your controlled environment. It's unacceptable to lose valuable production hours because your supplier is unable to deliver PPE when you need it. Our team at Lakeland, along with our network of exceptional distributors, will help you find the right PPE for your application and ensure you get your order when you need it.



**Folded,
unzipped
garment**



**Individually
packaged PPE can
be wiped down
with IPA**



**Bulk packaging
is available
in a single
overlay bag on
CleanMax® Clean
Manufactured
Non-Sterile frocks,
coveralls, boots,
and hoods.**

**Boxed with all
critical
information on
the box label**



**Easy-open tear
strip allows for
less handling
during donning**



Protecting
your products,
people, and
controlled
environments.



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