



## LIFE SCIENCES

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Hazards & Solutions

# LIFE SCIENCES



Companies within the Life Sciences industry are focused on research, development and the manufacture of products that enhance human well-being. Workers within this industry face a number of hazards not only to themselves but to their vital research and products. Laboratory workers and research facility workers who are exploring vital ideas for new drugs, vaccines, medical devices and other solutions face numerous serious hazards throughout their working day ranging from particulate, chemical, biological to heat and cut. Once the research and clinical trials are completed and the vaccine, for example, is to be upscaled and mass produced there are strict protocols to take into consideration. The primary focus for protection shifts to the product to ensure there is no risk of contamination during the manufacturing process, with facilities either operating in clean or clean and aseptic/sterile environment using PPE with validated sterility levels, cleanliness levels and chemical permeation levels.

## PRIMARY HAZARDS IN CLEAN, CLEAN/STERILE LIFE SCIENCES ENVIRONMENTS



EN ISO 14644-1 2015 Classification Number							
CONSUMABLES	1 & 2	3	4	5	6	7	8
Hood*	○	✓	✓	✓	○	○	○
Coverall	✓	✓	✓	✓	✓	○	○
Overboots	✓	✓	✓	✓	✓	○	○
Overshoes	×	×	×	×	○	✓	○
Undergarments	✓	✓	✓	✓	○	○	○
Coats	×	×	×	×	○	✓	✓
Facemasks*	○	✓	✓	✓	○	○	○
Gloves	✓	✓	✓	✓	○	○	○
Bouffant Cap	✓	✓	✓	✓	✓	✓	✓
Goggles	○	○	○	○	○	○	○
<b>Key:</b>	✓ Recommended	○ Application Specific	×	Not Recommended			

The biggest hazard within a cleanroom/ controlled environment is contamination from people often in the form of particulates. To avoid the introduction of contamination/ particles it's imperative workers wear the most appropriate PPE for the cleanroom ISO classification. These include disposable garments, gloves, goggles and facemasks.

The user should assess the choice of apparel and accessories carefully to ensure these are suitable for the Class of cleanroom, the nature and duration of the task.

This table is only intended as a general guide and should not be construed as a recommendation of the apparel required for a particular Class of cleanroom. Please see the Standard Operating Procedure of the cleanroom for the apparel required, the gowning procedure and change frequency.

\*Hoods and facemasks are not recommended in ISO 1&2 as full face respirators or encapsulation suits may be in use.

## LIFE SCIENCES HAZARDS & SOLUTIONS

Risks and hazards within the Life Sciences industry varies dependent on the environment, facility and the task being undertaken. Whether working with hazardous chemicals whilst compounding vital drugs and vaccines or handling hazardous chemicals during semiconductor/micro-electronic manufacturing, biological hazards in biomanufacturing or assembling medical devices which must be absolutely contamination free, the appropriate level of PPE is key.

### PRODUCT PROTECTION

For many life sciences applications the main purpose of PPE is to protect the product from contamination. Equipping workers with PPE that is compatible for use within strictly regulated cleanrooms and controlled environments is essential to reduce the risk of cross-contamination between the worker and the product that is being manipulated, which can be in the form of particulates (dust, skin, hair), bioburden (bacteria, viruses, fungi) and chemicals (solvents, residues), to ensure the integrity of the products being manufactured or the research being undertaken.



#### **BioClean™ Excell BEXS**

300mm hand specific sterile nitrile latex-free ISO Class 4 compatible gloves featuring a textured surface enabling good grip and dexterity and resistant to a range of chemicals.



#### **Nitrilite™ 93-401**

300mm ambidextrous non-sterile nitrile ISO Class 4 compatible gloves with very low levels of ionic content and particles for reliable product protection.



#### **BioClean™ Ultimate BUPS**

300mm hand specific sterile neoprene (polychloroprene) ISO Class 4 compatible gloves ensuring low ionic and particle levels.



#### **Nitrilite™ 93-311**

300mm ambidextrous non-sterile nitrile ISO Class 5 compatible gloves with low levels of ionic content and particles.



#### **BioClean™ N-Plus BNPS**

Longer length 400mm hand specific sterile nitrile ISO Class 4 compatible gloves packaged in PE wallet and EasyTear PE pouch suitable for cleanroom environments.



#### **AccuTech® 91-225**

300mm hand-specific thick, clean and sterile latex ISO Class 5 compatible gloves for aseptic applications.



#### **BioClean™ BCGS1**

Sterile single-use goggles featuring an indirect ventilation system to maintain user comfort and visibility whilst reducing the risk of contamination entering the cleanroom.



#### **BioClean-D™ S-BDFC**

Coverall with hood and integrated boots ensures head to toe coverage ensuring reliable product protection and exceptional comfort.

# CHEMICAL PROTECTION

To ensure the safety of workers within pharmaceutical manufacturing, compounding pharmacies, academic and R&D laboratories, biomanufacturing, micro-electronics and precision engineering who can be exposed to hazardous chemicals on a daily basis in a variety of ways - whether that's when blending, compounding solids and/or liquids, transferring liquids, cleanroom cleaning and preparation or FAB equipment maintenance and cleaning, wearing the right PPE with the right level of chemical protection is paramount.



## MICROFLEX® 93-360

300mm ambidextrous non-sterile nitrile and neoprene (polychloroprene) three layer design offering superior protection against harsh chemicals including acids, solvents and bases.



## TouchNTuff® 93-300

300mm ambidextrous non-sterile nitrile glove providing excellent chemical splash protection.



## TouchNTuff® Dermashield™ 73-701

295mm hand specific sterile neoprene (polychloroprene) glove superior chemical splash protection, tested against ASTM D6978 for chemotherapy drugs.\*

*\*Consult product documentation for specific drug permeation times and recommendations.*



## MICROFLEX® 93-853

295mm ambidextrous non-sterile nitrile gloves offering superior strength and durability for maximum protection against rips, snags or tears. Tested against ASTM D6978 for chemotherapy drugs.\*

*\*Consult product documentation for specific drug permeation times and recommendations.*



## MICROFLEX® 93-868

280mm ambidextrous non-sterile nitrile gloves featuring a dual layer, dual colour design with advanced barrier protection (AQL 0.65) against various hazardous substances and high-risk applications.



## TouchNTuff® 92-600

240mm ambidextrous non-sterile nitrile gloves offer superior splash resistance against a wide range of hazardous chemicals and are the world's leading disposable gloves for chemical splash protection.



## BioClean™ GGL

Sterile nitrile RABS/isolator gloves 100% air leak tested and tested against ASTM D6978-05 for handling cytotoxic drugs.



## BioClean-C™ S-BCAS

Sterile chemotherapy protective apron with sleeves, tested against permeation standard ASTM F739-12 and ultrasonically bonded seams with protective tape to ensure superior product and personal protection.

**Note:** Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment. Or use our self-service AnsellGUARDIAN® Partner tool to search our extensive chemical permeation and degradation data and identify the appropriate hand and body protection for the chemicals you use.

## UNDERSTANDING THE STANDARDS

When choosing PPE for protection against viruses like 2019-nCoV, it's important to know which regulatory standards to look for. Several top selling Ansell styles that meet relevant EN and ASTM standards are featured below. Please consult individual product information for details regarding the specific standards different products meet.

**EN 455**  
+  
**ASTM D6319**  
+  
**ASTM D3578**

Standards for **gloves** used for medical examinations.

**EN ISO 374-5**



**ASTM F1671**

**VIRUS**

Standards for **hand and body protection** against micro-organism risks.

**EN 14126**



Standard for **protective clothing** against infectious agents.\*

**EN 149:2001**  
+  
**A1:2009**

Standards for **respiratory tract protection** against airborne particulates.

\* EN 14126: 2003 defines performance requirements for clothing materials to protective against infectious agents. Test method ISO 16604 is relevant for resistance to penetration by blood-borne pathogens.

## BIOLOGICAL PROTECTION

Biological hazards often referred to as Biohazards are biological substances, that pose a threat to the health of living organisms primarily humans, including medical waste, micro-organisms such as bacteria, fungi and viruses or toxins produced by micro-organisms. As a result of COVID-19, workplaces must consider the need to protect against the spread of illness and viral infection. Ansell offers a wide range of solutions that comply with the World Health Organization's guidance regarding infection prevention and control. In order to make an informed decision, product purchasers and users should stay abreast of the latest and most complete information regarding appropriate PPE to protect against COVID-19 and other viruses in their specific environments and applications.



### **MICROFLEX® 93-843**

Durable examination grade nitrile with 0.65 AQL for exceptional barrier integrity, 9.5" length.



### **BioClean™ Advance BASL**

300mm hand specific sterile latex gloves providing EN ISO 374-5 VIRUS standard protection.



### **BioClean™ Synergy BSAN**

300mm ambidextrous non-sterile nitrile gloves offering EN ISO 374-5 VIRUS standard protection.



### **BioClean™ Fusion S-BFAP**

300mm ambidextrous sterile neoprene (polychloroprene) gloves tested to EN ISO 374-5 VIRUS standard protection.

**Note:** Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.

# STATIC PROTECTION

Electrostatic discharge (ESD) if not contained or controlled can be the cause of major disruption and damage to micro-electronic components or be the cause of ignition during powder processing, so it's imperative that the PPE worn by workers (carrying out applications with a risk of generating electrostatic discharge) are anti-static including garments, overshoes and gloves. Ansell have a range of solutions which have been tested to and pass anti-static standards.



## Nitrilite™ 93-401

300mm ambidextrous non-sterile ISO Class 4 compatible nitrile glove tested to requirements of electrostatic performance standard EN 1149-5.



## Nitrilite™ 93-311

300mm ambidextrous non-sterile ISO Class 5 compatible nitrile glove tested to requirements of electrostatic performance standard EN 1149-5.



## MICROFLEX® 93-843

245mm world's leading disposable glove for chemical splash protection. Robust design and soft nitrile formulation provides durability and comfort. Anti-static as per the requirements of EN 1149-5.



## TouchNTuff® 92-600

240mm sturdy glove made with a durable nitrile formulation that makes it ideal for long wear times and demanding jobs. Anti-static as per the requirements of EN 1149-5.



## BioClean™ Ultimate BUPS

300mm ambidextrous sterile ISO Class 4 compatible nitrile glove tested to requirements of electrostatic performance standard EN 1149-5.



## BioClean-D™ BDCHT

Coverall with hood manufactured from anti-static lightweight low-linting CleanTough™ material providing comfort and product and personal protection. Certified as per EN ISO 1149-5:2008 standard.



## BioClean-D™ BDOB-L

Single-use overboots constructed from anti-static lightweight low-linting CleanTough™ material with slip-resistant soles. Certified as per EN ISO 1149-5:2008 standard.



*Note: Product availability may vary. These styles serve as examples only. For tailored recommendations for your unique needs and applications, please request an AnsellGUARDIAN® assessment.*

## ALLERGY PROTECTION

Occasionally, wearing glove products can cause issues with the health of our skin. Skin allergies from adverse reactions to glove products are generally classified into three distinct types - immediate hypersensitivity/Type I, delayed hypersensitivity/Type IV or irritant contact dermatitis. Latex allergy, also known as Type I allergy, is the reaction to the residual allergenic protein present in natural rubber latex products. Type IV allergies mainly occur due to a reaction to chemical accelerators used in the glove manufacturing process. Ansell leaches and washes gloves to minimize the accelerator residue in the final products or eliminate the accelerator from the manufacturing process altogether if possible.



### **TouchNTuff® 73-500**

300mm hand specific sterile neoprene (polychloroprene) gloves, chemical accelerator-free offering unsurpassed combination of sensitivity and durability for sterile environments.



### **TouchNTuff® Dermashield™ 73-701**

295mm hand specific sterile neoprene (polychloroprene) glove free of latex proteins and chemical accelerators that can cause skin irritation.



### **BioClean™ Emerald BENS**

300mm hand specific sterile nitrile glove, easily double-donnable and latex-free and accelerator-free to reduce the risk of allergic reaction.



### **MICROFLEX® 93-823**

240mm ambidextrous thin nitrile glove clinically proven to reduce redness and itching associated with contact dermatitis.

## ERGONOMIC PROTECTION

Workers within a Life Sciences environment usually wear gloves to protect either themselves, the research being carried out or products being manufactured from contamination. Prolonged muscle effort from spending hours carrying out repetitive tasks and small hand movements could cause muscle strain leading to glove induced hand fatigue and, over time, may increase the risk of musculoskeletal disorders.



### **TouchNTuff® 73-500**

300mm sterile neoprene (polychloroprene) gloves anatomically shaped with curved fingers for the ultimate in ergonomic comfort.



### **MICROFLEX® 93-833**

240mm non-sterile nitrile gloves designed with ERGOFORM™ technology to support musculoskeletal health and increase productivity.

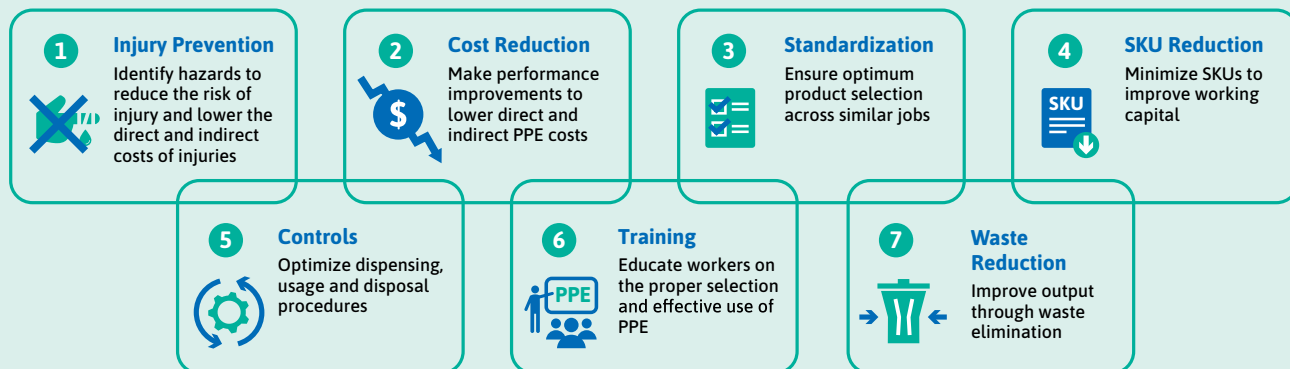


### **MICROFLEX® 73-847**

245mm non-sterile neoprene (polychloroprene) gloves designed with Ansell ERGOFORM™ technology to support musculoskeletal health.



AnsellGUARDIAN® is our consultative service to help companies select and implement the right personal protective equipment solutions to improve safety, increase productivity and reduce costs. Using our 125 years of experience, proprietary software system and database of over 30,000 chemicals, we analyze PPE needs and identify the solutions that will work best for each company's unique risks and applications. As an industry pioneer with the most advanced technology and analytics, we have evaluated and implemented best business practices in over 15,000 facilities worldwide, reducing injuries and saving companies a total of \$165M. AnsellGUARDIAN® assessments address 7 functional areas:



### Get Started Today

There's no cost for an AnsellGUARDIAN® assessment. Learn how we can help you reduce injuries, improve productivity and lower costs. Contact your local Ansell Sales Representative or Customer Service Representative today.

## ABOUT ANSELL

As a global leader in personal protective solutions with over 125 years of experience in keeping people safe, Ansell's mission is to provide innovative and reliable solutions for safety, well-being and peace of mind to workers around the world. Our global team of more than 12,000 people in 55 countries design, manufacture and market cutting edge PPE that millions of workers in industrial and healthcare settings rely upon every day. We offer a comprehensive portfolio of hand and body protection products and provide customers with tailored solutions to meet their unique needs across a wide range of industries and applications.

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Neither this document nor any other statement made herein by or on behalf of Ansell should be construed as a warranty of merchantability or that any Ansell product is fit for a particular purpose. Ansell assumes no responsibility for the suitability or adequacy of an end user's selection of gloves for a specific application.

**WARNING:** Products that provide "cut resistance" and "cut protection" or "puncture resistance" and "puncture protection" do not completely prevent or eliminate the potential for cuts or punctures, and are not intended or tested to provide protection against powered blades, serrated or other sharp or rotating equipment. Products that provide chemical resistance" or "chemical protection" do not completely prevent or eliminate the potential for injury due to chemical exposure. Products that provide "resistance" to oil or grease or which are "oil repellent" do not completely prevent or eliminate the potential for oil or liquid penetration or absorption. Products that provide "snag resistance" or "snag protection" do not completely prevent or eliminate the potential for snags or friction-related injuries. Products that provide protection against sparks or flames are not "fireproof" and do not completely prevent or eliminate the potential for burns or associated injuries. Products that provide protection or resistance against heat or cold are not intended for use in extreme temperatures – use only as specified. Products containing natural rubber latex may cause allergic reactions in some individuals. Users are encouraged to always use caution and care when handling sharp or abrasive materials, chemicals, or other hazardous or dangerous substances. Any information or data provided is based upon Ansell's current knowledge and understanding of the subject matter, and is offered solely as a possible suggestion for use in making your own decisions or product choices. Product users should conduct all appropriate testing or other evaluations to determine the suitability of Ansell products for a particular purpose or use within a particular environment. It is the responsibility of a product user to assess the level of risk and to determine the protective equipment required or appropriate for the user's particular purpose. Ansell may revise this information as new information, knowledge or experience becomes available. ANSELL DISCLAIMS ALL WARRANTIES OTHER THAN AS EXPRESSLY PROVIDED.



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