

DuPont Controlled Environments

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Quality, comfort, and durability for your cleanroom. For more than 200 years, DuPont has been putting science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. One of the areas in which safety and health are of paramount importance is in cleanrooms and controlled environments.

DuPont understands your need to do everything possible to improve productivity and reduce risk in your controlled environment. The DuPont Controlled Environments (CE) portfolio offers a comprehensive selection of single-use cleanroom apparel and accessories designed for use in pharmaceutical, medical device, biotech, and electronic settings that require high standards for particle and microbiological contamination control.

DuPont™ Tyvek® garments have a long history of use in cleanrooms due to their excellent barrier to particles, microorganisms, and non-hazardous liquids. They offer an ideal balance of protection, durability, and comfort. They are available in many styles for different cleanroom and controlled environment applications. With the DuPont Controlled Environments offering, you get the advantage of a wide range of proven, science-based solutions that help keep your cleanroom environment protected.



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DuPont™ Tyvek® at a glance

Tyvek® Overview

Tyvek* has been used to make high-quality cleanroom garments for more than 25 years. Tyvek* is made by DuPont with a proprietary flash-spinning process that creates continuous fibers of high-density polyethylene that are randomly distributed and non-directional.



Tyvek[®] is tough, yet lightweight and soft.



Tyvek* offers an ideal balance of protection, durability, and comfort.



Tyvek® acts as a breathable barrier against particles and bacteria.



Tyvek® repels aqueous liquids and liquid aerosols.



Tyvek[®] is inherently low linting and abrasion resistant.

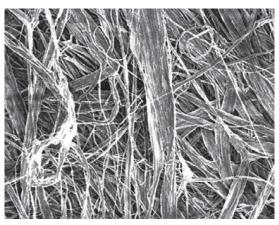


Image shown at 200x magnification.

Tyvek* is made with a unique flash-spinning process that creates a tortuous path for particles.

Benefits of Tyvek® IsoClean® Single Use Garments

DuPont sterile cleanroom garments, designed for single use, offer meaningful advantages in today's challenging cleanroom environments, including:

- Quality—single-use garments are not subjected to multiple cycles of wearing, laundering, and sterilization, so the fabric barrier and strength are consistent and predictable.
- **Flexibility**—order only the quantities that you plan to use, which offers flexibility as your needs change.
- **Cost control**—single-use garments help eliminate budget uncertainties associated with garment repair, damage, and loss, helping you to better predict expenditures.

DuPont quality systems for cleanroom garments

DuPont single-use garments for controlled environments offer the following standards of quality:

- The DuPont Controlled Environments quality management system is ISO 9001:2015 registered.
- Tyvek® IsoClean® sterile garments have a sterility assurance level of 10®. Radiation doses are validated in accordance with ANSI/AAMI/ISO 11137 through bioburden and dose verification testing.
- Tyvek® IsoClean® sterile garments are gamma irradiated in a facility that is registered by ISO 13485 quality standard and adheres to the requirements of ANSI/AAMI/ISO 11137
- A Gamma Irradiation Indicator Dot is included on every carton and every individual pouch of the Tyvek[®] IsoClean[®] sterile product range.
- A Certificate of Sterility and a Certificate of Compliance come with every shipment of sterile single-use garments.
- Dose audits are conducted quarterly to maintain dose validation.
- Customers are invited to audit our manufacturing and sterilization facilities.
- Quality documentation is readily available upon request to help meet customer requirements.
- Lot traceability is maintained through garment manufacturing, processing, and sterilization.

Tyvek® IsoClean® garment features

For ISO 4/5 (class 10/100) and ISO 7/8 (class 10,000/100,000) controlled environments.

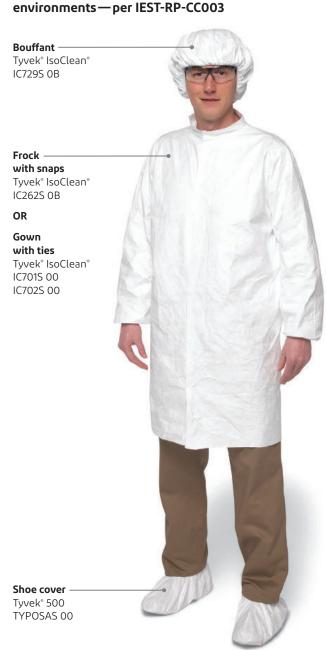
Tyvek[®] IsoClean[®]

- Tyvek[®] IsoClean[®] is made from Tyvek[®] flashspun, high-density polyethylene.
- The unique, patented flash-spinning process creates a barrier to dry particles, microorganisms, and nonhazardous liquids.
- It is comfortable, lightweight, and durable.

- Serged or bound seam options with covered elastic.
 The bound seam garments offer the highest particle barrier.
- The gripper[™] soles offer a high level of slip resistance compared to standard PVC soles.

Gowning for ISO 7/8 controlled





Gowning recommendations

Cleanroom Standards

ISO 14644-1 air cleanliness classes for cleanrooms and clean zones

ISO classification number	0.1 µm	0.2 μm	0.3 µm	0.5 μm	1.0 µm	5.0 µm	SI	English former FED-STD-209E
ISO Class 1	10							
ISO Class 2	100	24	10					
ISO Class 3	1,000	237	102	35	83		M 1.5	1
ISO Class 4	10,000	2,370	1,020	352	832		M 2.5	10
ISO Class 5	100,000	23,700	10,200	3,520	8,320	293	M 3.5	100
ISO Class 6	1,000,000	237,000	102,000	35,200	83,200	2,930	M 4.5	1,000
ISO Class 7				352,000	832,000	29,300	M 5.5	10,000
ISO Class 8				3,520,000	8,320,000	293,000	M 6.5	100,000
ISO Class 9				35,200,000	83,200,000	2,930,000		

IEST-RP-CC003 minimum gowning recommendations

	ISO Class 8 (Class 100,000)	ISO Class 7 (Class 10,000)	ISO Class 6 (Class 1,000)	ISO Class 5 (Class 100)	ISO Class 4 (Class 10)
Hair cover	•	•	•	•	•
Hood				•	•
Face mask				•	•
Frock	•	•			
Coverall			•	•	•
Shoe covers	•	•			
Boots			•	•	•

A, B, C, D rating table

	Maximum permitted number of part	Maximum permitted number of particles equal to or greater than 0.5 μm		
Grade	At rest equal to or greater than 0.5 μm per m³	In operation equal to or greater than 0.5 µm per m³		
A	3 520	3 520		
В	3 520	352 000		
С	352 000	3 520 000		
D	3 520 000	Not defined		

Gowning recommendations

Seam construction—even the best protective fabrics are useless without strong, tight seams.



Serged or sewn

A seam produced when three threads are interlocked around the raw edges of two pieces of material for a strong, stress-resistant seam.



Bound

Tightly sewn with a reinforced outer binding to increase seam strength and barrier.

For potential misting exposure of nonhazardous liquids or particle penetration through the seam.



Covered elastic

Elastic covered by garment material so elastic is not exposed.



Taped

Both sewn and taped to provide strong chemical resistance against heavy liquid splashes and tough seam stress.

A sewn seam is covered with a strip of compatible material by heat-sealing.



Welded

A sealed seam produced when materials are lapped and thermally welded. There are no fillers, thread, or needle holes.

Select Sierra™ masks have welded seams.



DuPont™ SafeSPEC™—we're here to help

Our powerful web-based tool can assist you with finding the appropriate DuPont garments for chemical, controlled environment, thermal, and mechanical hazards.

safespec.dupont.asia



Contamination & Bioburden protection

cleanroomprotection.dupont.asia

Garment processing and packaging options

Sterile

Clean-processed and sterile (option code CS)

Garments are specially processed to minimize particle shedding, then folded to aid in aseptic donning and individually packaged in an ISO Class 4 cleanroom. The case quantity is packaged in a cardboard case with two polyethylene liners. Sterility is achieved by gamma irradiation. Radiation dosage is validated in accordance with ISO 11137 for a Sterility Assurance Level (SAL) of 10-6.

Sterile (option code OS)

Garments are folded to aid in aseptic donning and individually packaged. The case quantity is packaged in a cardboard case with two polyethylene liners.

Some sterile items are folded and individually packaged in an ISO Class 5 cleanroom (see garment data sheet). Sterility is achieved by gamma irradiation. Radiation dosage is validated in accordance with ISO 11137 for a Sterility Assurance Level (SAL) of 10⁻⁶.

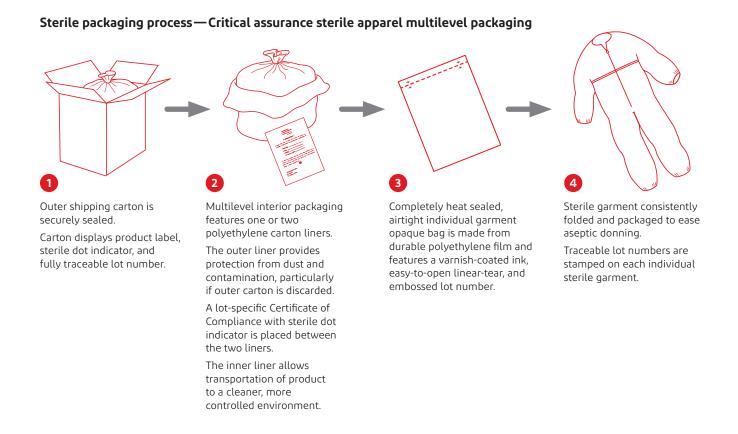
Non-sterile

Bulk (option code OB or OO)

Case quantities are packed in a cardboard case with two polyethylene liners. Tychem® garments are packed in a cardboard case with a single polyethylene liner.



Opaque sterile pouch packaging features a no-smear label.



Tyvek[®] IsoClean[®] Clean-processed and Sterile garment systems



Tyvek® IsoClean® Clean-processed and Sterile: All In One System





Coverall IC109 0S

- Clean-processsed and sterile garment
- · Attached elastic hood
- · Serged internal seams
- · Elastic wrists and ankles
- Zipper closure
- Set sleeve with thumb loops
- · Attached Boots with PVC soles
- Aseptically folded



Scan or Click for more information!

Production Size	Mask	
Production Size	ML7360 0S	
Pack Size	250	
One size	D13473980	

Production Size	Coverall	
Production Size	IC109 0S	
Pack Size	3 25	
MD	D15539014	
LG	D15539015	
XL	D15539016	
2X	D15539017	
3X	D15539018	

Tyvek® IsoClean® Sterile: 2 Piece System





LG

XL





Option 0S



Scan or Click for more information!

D14246814

D14246825

Deadweties Cies	Mask	Boot	cover
Production Size	ML7360 0S	IC457S 0S	IC458B CS
Pack Size	3 250	100	100
One size	D13473980	-	-
SM	-	D14238489	D15046115
MD	-	D14238474	D14246800

D14238462

D14238497

IC187S OS

- Gamma sterilized to an SAL of 10-6
- Serged internal seams
- Attached elastic hood
- Set sleeve with attached thumb loops
- Elastic wrists and ankles
- · Zipper closure
- · Aseptically folded

Production Size	Coverall	
Production Size	IC187S OS	
Pack Size	3 25	
SM	D15552541	
MD	D15552662	
LG	D15552663	
XL	D15552664	
2X	D15552665	
3X	D15552666	

Tyvek® IsoClean® Clean-processed and Sterile: 3 Piece System









Scan or Click for more information!

- Clean-processsed & sterile garment (CS)
- · Bound seams
- Bound neck
- · Dolman sleeve
- · Covered elastic wrists and ankles
- Zipper closure
- Coveralls are also available in sterile only IC253B OS

Production	Mask	Boot cover	Но	od
Size	ML7360 0S	IC458B CS	IC668B CS	IC666B CS
Pack Size	250	\$ 100	\$ 100	\$\frac{100}{100}
One size	D13473980	-	D14244886	-
SM	-	D15046115	-	-
MD	-	D14246800	-	D13473545
LG	-	D14246814	-	D13473515
XL	-	D14246825	-	-

Production	Coverall			
Size	IC253B CS	IC253B 0S		
Pack Size	2 5	2 5		
SM	-	D14238298		
MD	D14238284	D14239276		
LG	D14238261	D14238254		
XL	D14238328	D14238317		
2X	D14238207	D14238194		
3X	D14238224	D14238219		
4X	D14238243	D14238234		

Tyvek[®] IsoClean[®] Clean-processed and Sterile Range



Tyvek® IsoClean® Clean-processed and Sterile Coveralls



Coverall **IC109 0S**

MD: D15539014 LG: D15539015

D15539016 2X: D15539017

3X: D15539018

- Gamma sterilized to SAL of 10-6
- · Clean-processsed and sterile garment (CS)
- · Attached elastic hood
- Serged internal seams
- · Elastic wrists and ankles
- · Zipper closure
- Set sleeve with thumb loops
- · Attached Boots with slip retardant PVC soles
- · Aseptically folded











Coverall **IC187S OS**

SM: D15552541

MD: D15552662

LG: D15552663 XL: D15552664

2X: D15552665

3X: D15552666

- Gamma sterilized to SAL of 10-6
- Sterile garment (OS)
- · Serged internal seams
- · Attached elastic hood
- · Set sleeve with attached thumb loops
- · Elastic wrists and ankles
- Zipper closure
- · Aseptically folded













Coverall IC253B CS

MD: D14238284

LG: D14238261

XL: D14238328

2X: D14238207

3X: D14238224 4X: D14238243

- Gamma sterilized to SAL of 10-6
- Clean-processsed & sterile garment (CS)
- Bound seams
- · Bound neck
- Dolman sleeve
- · Covered elastic wrists and ankles
- · Zipper closure





ISO 11137-1 Option CS







Coverall **IC253B 0S**

SM: D14238298

MD: D14239276

LG: D14238254

XL: D14238317

2X: D14238194

3X: D14238219

4X: D14238234

- Gamma sterilized to SAL of 10-6
- · Sterile garment (OS)
- · Bound seams
- · Bound neck
- · Dolman sleeve
- · Covered elastic wrists and ankles
- · Zipper closure









Tyvek® IsoClean® Clean-processed and Sterile Accessories



Hood IC668B CS One size: D14244886

- Gamma sterilized to SAL of 10-6
- · Clean-processed
- Bound seams
- · Bound hood
- Full face opening
- Ties with loops for adjustable fit











Hood IC666B CS

MD: D13473545 LG: D13473515

- Gamma sterilized to SAL of 10-6
- Clean-processed
- Bound seams
- · Bound hood
- · Eyes-only opening
- · Snaps for adjustable fit













Boot cover IC458B CS

SM: D15046115 MD: D14246800 LG: D14246814 XL: D14246825

- Gamma sterilized to SAL of 10-6
- · Clean-processed
- · Bound seams
- Gripper™ soles
- 18" high boot cover with covered elastic top
- · Ties at ankles





ISO 11137-1 Option CS







Boot cover IC457S 0S

SM: D14238489 MD: D14238474 LG: D14238462 XL: D14238497

- Gamma sterilized to SAL of 10-6
- · Sterile only
- Serged seams
- PVC soles
- 18" high boot cover with covered elastic top
- · Ties at ankles





ISO 11137-1 Option 0S





Tyvek® IsoClean® Clean-processed and Sterile Accessories



Sleeve IC501B CS

One size: D14238514

- Gamma sterilized to SAL of 10-6
- · Clean-processed
- Bound seams
- · Covered with elastic at both ends
- 18" long











Mask ML7360 0S

One size: D13473980

- \cdot Gamma sterilized to SAL of 10-6
- · Sterile only
- 9" size with bound Tyvek® ties for cleanroom use
- · Pleated rayon outer facing
- · Metal nose fit













Bouffant IC729S CS

- Gamma sterilized to SAL of 10-6
- · Clean-processed
- · Elastic headband









Tyvek[®] and Tychem[®] Non-Sterile Range



Tyvek[®] IsoClean[®] Non-Sterile Range



Gown IC701S 00

One size: D13395998

- Tyvek® IsoClean® Gown
- · Serged seams
- · Bound neck with ties
- Knit cuffs
- Bound ties originating at centre front waist
- 39" gown length







Gown IC702S 00

MD: D15531629 2X: D15531630

- Tyvek® IsoClean® Gown
- TGA: ARTG 342916
- CE Cat III
- · Serged seams
- · Bound neck with ties
- Knit cuffs
- Bound ties originating at centre front waist
- 51" gown length







76TYPE PB [6-B]





Bouffant IC729S OB

One size: D14246919

- Tyvek® IsoClean® Bouffant
- Serged seams
- · Elastic headband
- Bulk packaged
- 21.5" diameter







Frock IC262S OB

SM: D14247830

MD: D14247825

LG: D14247818

XL: D14247807

2X: D14247798

3X: D14247788

4X: D14247774

- Tyvek® IsoClean® Frock
- Serged seams
- · High mandarin collar with snap
- Elastic wrists
- · Front snap closure





Tyvek® 500 Non-Sterile Range



Shoe cover TYPOSA

36-42: D13398565 42-46: D13398551

- Tyvek® 500 shoe cover
- Slip-retardant sole
- · Elastic ankle
- · Stitched internal seams

















Boot cover TYPOBA

One size: D13395989

- Tyvek® 500 boot cover
- · Slip-retardant sole
- · Stitched internal seams
- Elastic top
- · Fixations ties

















Sleeve TYPS32

- Tyvek® 500 sleeve
- Elastic openings
- · Stitched internal seams
- · Blue stitches on upper arm



CAT III











Tyvek® 500 Non-Sterile Range



Apron TYPA30

One size: D13396088

- Tyvek® 500 Apron
- Shin-length
- · Neck and waist ties















Labcoat **TYPL309**

MD: D13495983 LG: D13398951 XL: D13398984 2X: D13495948

- Tyvek® 500 labcoat with zipper closure
- 2 Pockets
- Elastic cuff (tunnelled)
- · Stitched internal seams

















Trousers TYPT31

MD: D13496109 LG: D13395741 XL: D13395735 2X: D13496097

- Tyvek® 500 trousers
- · Elasticated waist
- · Stitched internal seams
- · No pockets



















Hood **TYPH30**

- Tyvek® 500 hood
- Wide flange with elastic neck and face
- · Stitched internal seams

















Tychem® 2000 C Non-Sterile Range



Apron TCPA30

One size: D13984657

- Tychem® 2000 C Apron
- · Shin-length
- · Neck and waist ties
- · Partial body chemical protection against numerous concentrated inorganic chemicals and biohazards

















Sleeve TCPS32

One size: D13984632

- Tychem® 2000 C Sleeve
- Stitched and over-taped seams
- · Partial body chemical protection against numerous concentrated inorganic chemicals and biohazards

















Gown TC0290

MD: D15546833

2X: D15546834

- Tychem® 2000 C Gown
- · Shin-length
- · Wrap-over rear closure with tie
- · Stitched and over-taped seams
- · Double sleeves
- · Mandarin collar
- · Partial body chemical protection against numerous concentrated inorganic chemicals and biohazards



TYPE 3-B















Boot cover TCPOBA

- Tychem® 2000 C Boot cover
- · Fixation ties
- · Knee-length
- · Slip-retardant sole
- · Stitched and over-taped seams with barrier tape for protection and strength















Tyvek® and Tychem® Non-Sterile Coveralls



Coverall - Tyvek® 500 Xpert

TYCHF5SWH

SM: D14663953

MD: D14663967 LG: D14663977

XL: D14663986

2X: D14663997 3X: D14664003

D15553613

TYPE 5-B

TGA: ARTG 342911

 Suitable for GMP C&D ISO 7/8, CLASS 10,000/ 100,000 controlled environments

· CE Certified, non-sterile disposable hooded coverall

· Certified to EN 14126: 2003 (barrier to infective agents)

· Ergonomic design for optimal fit



CAT III

4X:



















Coverall - Tyvek® 600 Plus

TYCHA5TWH

SM: D13495782

MD: D13395307 D13395299 I G.

XL: D13395284

2X: D13395272 3X: D13495752

4X: D14981422 TGA: ARTG 342912

 Suitable for GMP C&D ISO 7/8, CLASS 10,000/100,000 controlled environments

CE Certified, non-sterile disposable hooded coverall

· Certified to EN 14126: 2003 (barrier to infective agents)

· Stitched and over-taped seams for extra protection and strength



























Coverall - Tyvek® 800J

TJ198TWH

MD: D15441661

LG: D15441676

D15441684 2X: D15441698

D15441708

• TGA: ARTG 342913

 Suitable for GMP C&D ISO 7/8, CLASS 10,000/ 100,000 controlled environments

CE Certified, non-sterile disposable hooded coverall

Certified to EN 14126: 2003 (barrier to infective agents)

· Impervious fabric technology, with stitched and over-taped seams for extra protection

















EN1073-2







Coverall - Tychem® 2000

TCCHA5TYL

MD: D13675315 LG: D13675324

XL: D13675336 2X:

D13675340 3X: D13675352

- · CE Certified, non-sterile disposable hooded coverall
- Certified to EN 14126: 2003 (barrier to infective agents)
- · Protection against numerous concentrated inorganic chemicals and biohazards.
- Stitched and over-taped seams with barrier tape for protection and strength
- · Self-adhesive double zipper flap closure system for higher protection















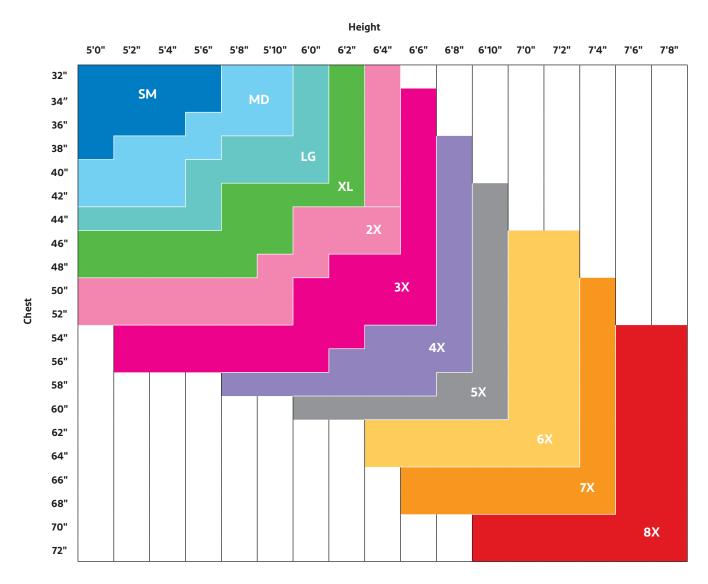






Sizing chart for DuPont Controlled Environments garments

Use this chart to determine what size garment is right for you. Sizes are based on an individual's height and chest size.



Garment may shrink during cleaning process. Please use your best judgment to determine the most appropriate size to order based on this chart.

Latex statement: As of January 1, 2006, DuPont production specifications exclude use of components containing natural rubber latex in the manufacture of DuPont* Tyvek* IsoClean*, Sierra*, and ProClean* garments.

Tyvek* 600 contains natural rubber latex which may cause allergic reactions in some sensitized individuals. Anyone who begins to exhibit an allergic response during the use of DuPont products should immediately cease using these products.

DuPont production specifications for Gripper™ PVC exclude use of latex. Notwithstanding, DuPont cannot guarantee the absence of latex in these shoe or hoot covers

Anyone who begins to exhibit allergic response during the use of DuPont products should immediately cease using these products. The incident should also be reported to DuPont at 1 800 441 3637.

Silicone statement: In the past, DuPont has found that threads and zippers can be the most significant source of silicone oil contamination in garments. DuPont specifies that threads and zippers used in Tyvek* IsoClean* and ProClean* garments be manufactured without the use of silicone oils. Notwithstanding, DuPont cannot guarantee the absence of silicone oils on these garments.

For end users with concerns about contamination with silicone oils or any other contaminants, the best practice is to audit inbound materials, including garments for those contaminants.

This information is based upon technical data that DuPont believes reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of results and assumes no obligation or liability in connection with this information. It is the user's responsibility to determine the level of toxicity and the proper personal protective equipment needed. The information set forth herein reflects laboratory performance of fabrics, not complete garments, under controlled conditions. It is intended for information use by persons having technical skill for evaluation under the specific end-use conditions, at their own discretion and risk.

Anyone intending to use this information should first verify that the garment selected is suitable for the intended use. In many cases, seams and closures may provide less barrier than the fabric. If the fabric becomes torn, abraded or punctured, end user should discontinue use of garment to avoid compromising the barrier protection. Since conditions of use are outside our control, we make no warranties, expressed or implied, including without limitation, no warranties of merchantability or fitness for a particular use and assume no liability in connection with any use of this information. This information is not intended as a license to operate under or a recommendation to infringe any patent, trademark or technical information of DuPont or others covering any material or its use.

Warning: Cleanroom apparel should not be used around heat, flames, sparks or in potentially flammable or explosive environments. Cleanroom fabrics should have slip-resistant materials on the outer sole of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

Warning: Tychem* should not be used around heat, flames, sparks or in potentially flammable or explosive environments. Only Tychem* 6000 FR, Tychem* 10000 FR and Tychem* 10000 styles 600T/601T (with aluminized outer suit) garments are designed and tested to help reduce injury during escape from a flash fire. Users of Tychem* 6000 FR, Tychem* 10000 FR and Tychem* 10000 styles 600T/601T (with aluminized outer suit) garments should not knowingly enter an explosive environment. Consult the Tychem* user manual, located on our website, for instructions on proper use, care, and maintenance of your Tychem* garments.

- ¹ DuPont garments and accessories for controlled environments are not flame-resistant and should not be used around heat, flame, sparks or in potentially flammable or explosive environments.
- ² Garments made of Tyvek* should have slip-resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.
- ³ Respirator fit hoods are designed with a longer zipper, extending to the chin for complete coverage of the neck area. Standard hoods only extend to the neck.



DuPont™ SafeSPEC™—we're here to help

Our powerful web-based tool can assist you with finding the appropriate DuPont garments for chemical, controlled environment, thermal, and mechanical hazards.

safespec.dupont.asia



DPP AP Academy

The newly launched AP DPP Academy is the Asia Pacific resource center. Stay connected with us on the latest virtual events, product paunches, other materials and learn everything about DuPont Personal Protection.

dppacademy.dupont.com





DuPont Controlled Environments safespec.dupont.asia

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DuPont Personal Protection

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