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DISPOSABLE COVERALLS DISPOSABLE LABORATORY COATS SELECTION GUIDE

PPE Regulation EU 2016/425

The conditions for the sale of personal protective equipment (PPE), and the fundamental safety requirements that this PPE must meet, are regulated in the PPE Regulation EU 2016/425.

If the requirements set out in the directive are met, the product is eligible for UKCA marking for the Great Britain market, and CE marking for the European internal market.

Depending on the level of risk that protective clothing is designed to protect against, PPE is assigned to one of three categories:

Category I: Simple protective equipment, low risk

Category II: Protective clothing that protects the wearer against hazards; PPE that does not fall into category 1 or category 3, medium risk

Category III: Protective clothing that protects the wearer against potentially fatal hazards or serious and irreversible damage to health, high risk

All protective coveralls are produced and approved according to Category III. Within this category, protective suits are then divided into "types", ranging from 1 to 6, which define the degree of protection offered by each suit. Type 1 suits provide the highest level of protection, and Type 6 coveralls provide the lowest. The infographic below identifies the protection levels of the various Types of coverall. This infographic will be used throughout this selection guide to indicate the level of protection provided by each garment, which will aid you in selecting the most appropriate one for your requirements.



Coverall Standards

Standard	Description	Pictogram
EN 1149-5	Protective clothing with anti-static properties	4
EN 1073-2	Protective clothing against particulate radioactive contamination	
EN 14126	Protective clothing against infectious agents	
EN 13034	Limited spray-tight coveralls (protection against light mist spray) - Type 6	TYPE 6
EN 13982-1	Particle-tight coveralls (protection against solid particulates) - Type 5	TYPE 5
EN 14605 Spray Test	Spray-tight coveralls (spray test) - Type 4	TYPE 4
EN 14605 Jet Test	Liquid-tight coveralls (jet test) - Type 3	TYPE 3

MICROPOROUS TYPE 5 & 6 COVERALLS

DESCRIPTION:

OPTIMUM PROTECTION™ Type 5 & 6 coveralls are a superior quality garment manufactured from breathable liquid resistant **laminated microporous** material. The material allows the skin to breathe whilst resisting the penetration of many different non-hazardous liquids and particles. The material is strong and our garment offers knitted cuffs for a more comfortable fit.

25 Garments Vacuum Packed, Per Carton

FEATURES:

- Type 5 & 6 Certified Category III PPE
- Anti-Static to EN 1149-5
- · Barrier to Radioactive Particles Class 1
- Barrier to Infectious Agents EN 14126
- Low Lint Laminated Microporous Material & Breathable Fabric
- Comfortable Knitted Cuffs & Self-Adhesive Flap Over Zip
- Material Weight: 65gsm

SUITABLE APPLICATIONS:

- Laboratory
- Cleanroom

Pharmaceutical

Virus Protection

- Forensic Science
- Medical
- Paint Spray
- Food Processing

MICROPOROUS LAMINATE MATERIAL:

Disposable protective garments often use microporous material. Microporous fabric is a polypropylene membrane that is thermally laminated to a polypropylene nonwoven. It contains pores with a diameter of less than 2nm (nanometres), making them too small for most solid particles, liquids and even viruses to pass through (most viruses are in the range of 20nm to 500nm in diameter). This provides excellent protection against harmful liquid substances and hazardous particles.

The laminated outer surface is smooth, which reduces the risk of attracting and retaining micron-sized particles, making it suitable for use in hygiene environments.

This fabric still allows gases to penetrate, so it is breathable, thus making it more comfortable to the wearer than other materials offering similar protection.

SERGED SEAMS:

A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally used for chemicals protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.



Overboots Sold Seperately, See Page 14



- Virus Protection
- ✓ Vacuum Packed
- CE & UKCA Marked
- PPE Cat III
- Low Lint
- Anti-Static
- Breathable

MICROPOROUS TYPE 5 & 6 COVERALLS

PERFORMANCE LEVELS AND CLASSES

Property	Result	Class	
Abrasion Resistance (EN 530 Method 2)	>500 Cycles		3/6
Flex Cracking Resistance (EN ISO 7854 Method B)	>100,000 Cycles		6/6
Trapezoidal Tear Resistance (EN ISO 9073-4)	16.7N Weft 46.0N Warp		2/6
Tensile Strength (EN ISO 13934-1)	76.0N Longitudinal 34.0N Transverse		1/6
Puncture Resistance (EN 863)	7.22N		1/6
	NaOH (10%)	96.5%	3/3
Repellency to Liquids	H₂SO₄ (30%)	95.4%	3/3
(EN ISO 6530 & EN 13034)	o-xylene	88.8%	2/3
	Butan-1-ol	95.5%	3/3
	NaOH (10%)	0%	3/3
Penetration by Liquids	H₂SO₄ (30%)	0%	3/3
(EN ISO 6530 & EN 13034)	o-xylene	0%	3/3
	Butan-1-ol	0%	3/3
Inward Leakage Test (EN 13982-2 Method B)	(IL) Ljmn, 82/90 ≤ 30% (TILS) Ls, 8/10 ≤ 15%		Pass
Light Spray Test (EN 13034 - EN 468)	No Penetration Spots		Pass



EN 14126: Biohazards EN 1073-2: Radioactive Particles EN 13982-1: Particle Tight (Type 5) EN 13034: Spray Tight (Type 6)







Chest (cm)	Height (cm)*		
112	153		
122	163		
132	173		
142	180		
152	185		
156	189		
-	Chest (cm) 112 122 132 142 152 156		

*Length of garment measured from shoulder to floor

OPTIMUM™ TYPE 5 & 6 SMS COVERALLS

DESCRIPTION:

OPTIMUM PROTECTION™ Type 5 & 6 coveralls manufactured from breathable liquid resistant SMS (Spunbond-Meltblown-Spunbond) material. This material resists the penetration of many different non-hazardous liquids and particles. The material is more breathable than microporous coveralls, making it more suited to construction work. For protection against asbestos fibres, acid and alkali splash and water. In accordance with ČE category 3, Type 5 & 6.

Not recommended for use in cleanrooms.

FEATURES:

- Type 5 & 6 Certified Category III PPE
- Ideal for protection against asbestos fibres during removal operations
- Breathable fabric
- Elasticated cuffs
- EN 1073-2 Barrier to Radioactive Particles
- EN 13082-1 (Type 5) and EN 13034 (Type 6) Protection

SUITABLE APPLICATIONS:

- Asbestos Removal
- Insulating
- **Hygiene Protection**
- Low Hazard Liquid Chemicals
- Spray Painting
- · General Building Work

AVAILABLE COLOURS:

White, Blue or Red

SMS MATERIAL:

SMS material is a tri-laminate, nonwoven fabriic. It's name comes from the manufacturing processes of the various layers. The top and bottom layers are Spunbond Polypropylene and the middle layer is Meltblown Polypropylene. The inner Meltblown layer functions as a filter for particles. This fabric provides basic liquid and dust protection against non-hazardous liquids and particles, but is also breathable, helping users to stay comfortable.

The fabric is tougher than Microporous, with a more textured surface, which will attract and retain micron-sized particles. This, combined with the high air permeability of the fabric, which reduces its barrier properties, is why it's not recommended for use in cleanrooms. The product is more suited to applications such as construction work and asbestos removal.

For cleanroom use, we suggest coveralls made from microporous material, such as the Microporous Type 5 & 6 Coverall on page 2 of this guide.



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- X Virus Protection
- X Vacuum Packed
- CE & UKCA Marked
- PPE Cat III
- Low Lint
- Anti-Static
- Breathable



OPTIMUM™ TYPE 5 & 6 SMS COVERALLS



Property	Result	Class	
Abrasion Resistance (EN 530 Method 2)	>100 Cycles	>100 Cycles	
Flex Cracking Resistance (EN ISO 7854 Method B)	>100,000 Cycles	>100,000 Cycles	
Trapezoidal Tear Resistance (EN ISO 9073-4)	87.2N Longitudinal 41.9N Transverse		4/6 3/6
Tensile Strength (EN ISO 13934-1)	140.0N Longitudinal 54.0N Transverse		3/6 1/6
Puncture Resistance (EN 863)	8.08N		1/6
	NaOH (10%)	98.0%	3/3
Repellency to Liquids	H₂SO₄ (30%)	96.2%	3/3
(EN ISO 6530 & EN 13034)	o-xylene	0.0%	Unclassified
	Butan-1-ol	13.3%	Unclassified
	NaOH (10%)	0%	3/3
Penetration by Liquids	H₂SO₄ (30%) 0%		3/3
(EN ISO 6530 & EN 13034)	o-xylene 27.6%		Unclassified
	Butan-1-ol	26.2%	Unclassified
Inward Leakage Test (EN 13982-2 Method B)	(IL) Ljmn, 82/90 ≤ 30% (TILS) Ls, 8/10 ≤ 15%	(IL) Ljmn, 82/90 ≤ 30% (TILS) Ls, 8/10 ≤ 15%	
Light Spray Test (EN 13034 - EN 468)	No Penetration Spots		Pass



EN 1073-2: Radioactive Particles EN 13982-1: Particle Tight (Type 5) EN 13034: Spray Tight (Type 6)





Size	Chest (cm)	Height (cm)*
S	112	153
М	122	163
L	132	173
XL	142	180
XXL	152	185
XXXL	156	189

*Length of garment measured from shoulder to floor

BIOCLEAN TYPE 5 & 6 COVERALLS



Size

S

Μ

L

XL

XXL

DESCRIPTION:

STERILE Type 5 & 6 coveralls are a superior quality garment manufactured from breathable liquid resistant microporous material. The material allows the skin to breathe whilst resisting the penetration of many different non hazardous liquids and particles. IPA resistant ink ensures that bags can be wiped down with cleaning fluid without fear of cross contamination from printing inks.

FEATURES:

- Type 5 & 6 Certified Category III
- Anti Static to EN 1149-5
- Barrier to Radioactive Particles Class 1
- Gamma Irradiated Sterile Type 5 & 6 Coveralls
- Thumb Loops
- Zip Flap Cover

SUITABLE APPLICATIONS:

- Pharmaceutical
- Laboratory
- Cleanroom

Medical

Forensic Science

BOUND SEAMS:

A bound seam joins two pieces of material with an overlay of similar materials and is chain stitched through all the layers for a clean finished edge. This provides increased holdout of liquids and dry particulates are a concern.



SMS COOL TYPE 5 & 6 COVERALLS

DESCRIPTION:

Type 5 & 6 coveralls manufactured from white 67gsm microporous laminated front, with a breathable blue 50gsm SMS back. The garment allows the skin to breathe more than a regular Type 5 & 6 garment. Ideal for more active tasks. Typical applications include laboratory, food processing, forensic science and medical.

Not recommended for use in cleanrooms.

FEATURES:

- 67gsm Microporous Laminate with 50gsm SMS Back Panel
- Three Piece Hood
- Low-Linting, Anti-Static Knitted Cuffs
- Elasticated Ankles
- Two Way Zip
- Adhesive Zip Flap
- Latex and Silicone-Free

SUITABLE APPLICATIONS:

- Pharmaceutical
- Laboratory
- Food Processing
- Forensic Science

- Medical
- Automotive Paint Spraying
- Fibreglass Product Manufacture
- General Paint Spraying

SERGED SEAMS:

A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally used for chemicals protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.



EN 13034: Spray Tight Coverall (Type 6)



EN 1073-2: Radioactive Particles



Size	Chest (cm)	Height (cm)
S	82-92	162-167
М	92-102	167-172
L	102-112	172-177
XL	112-122	177-182
XXL	122-132	183-188
XXXL	132-142	188-193



TYVEK TYPE 5 & 6 COVERALLS



DESCRIPTION:

Tyvek Type 5 & 6 coveralls are manufactured from breathable liquid resistant Dupont material. The material allows the skin to breathe whilst resisting the penetration of many different non-hazardous liquids and particles. Typical applications include laboratory, clean room, pharmaceutical, food processing, forensic science, medical and paint spray.

FEATURES:

- Type 5 & 6 Certified Category III
- Anti-Static to EN 1149-5
- · Barrier to Radioactive Particles Class 1
- Barrier to Infectious Agents EN 14126
- Self-Adhesive Storm Flap Over Zip

SUITABLE APPLICATIONS:

- Pharmaceutical
- Laboratory
- Cleanroom

SERGED SEAMS:

A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally used for chemicals protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.

Forensic Science

Medical



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XXXL

124-132

194-200

Category I (Minimal Risk)

DESCRIPTION:

An antistatic, sterile protective coverall with thumb loops, and elastic hood, wrists, ankles and waist. Each coverall is manufactured from an innovative processed bicomponent material without adhesives, for high quality comfort and protection. All seams are fully welded and the front size has a self adhesive storm flap, giving the garment Type 4 protection against liquid spray. This garment provides excellent protection against cytostatics

The specially-developed clean-sealed technology ensures that weak points, such as seams, are thermally sealed. This provides additional barrier protection against particles and liquids. By wearing SimSafe coveralls, no additional sleeve protectors or aprons have to be worn during the production of cytostatic drugs.

All SimSafe products are available in validated sterile and non-sterile versions and are vacuum-packed in IPA-resistant, easy-to-open bags.

SimSafe is the only non-woven material which undergoes water clean treatment to achieve the required cleanroom condition. All other cleanroom non-woven apparels are only produced in cleanroom environment or clean processed.

All garments are manufactured using a unique clean-sealed technology and are vacuum packed in IPA resistant bags, making them suitable for use in ISO 4 (GMP A/B) class cleanrooms.

FEATURES:

- Thumb Loops
- · Elastic Hood, Wrists, Ankles and Waist
- Unique Clean-Sealed Technology
- · Fully Welded, Heat-Sealed Seams
- Self Adhesive Zip Flap
- · Excellent Protection Against Cytostatics
- Antistatic
- · Sterile by Irradiation
- IPA Resistant Bags

SUITABLE APPLICATIONS:

- Pharmaceutical
 - Laboratory
- Cleanroom

HEAT SEALED SEAMS:

A heat-sealed seam is sewn and then sealed with a heat activated tape. This method provides liquid proof seams, and is especially useful for a level A and B chemical protective clothing.

EN 1149-5: Antistatic





EN 14605:



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Forensic Science

Medical

EN 13034: Spray Tight Coverall (Type 6)





✓ Sterile

- **Vacuum Packed**
- ✓ PPE Cat III
- Type 4, 5 & 6





DESCRIPTION:

DuPont[™] Tyvek® Classic Plus gives you a combination of the performance of a Type 4 coverall with the durability, protection and comfort of a Tyvek® suit. Classic Plus is made of Tyvek®, but the coveralls offer the added benefit of protective design features and over taped seams. They provide an effective barrier against many inorganic chemicals in low concentration and particles larger than 1.0µm. These coveralls are ideal for occupations that require effective whole suit protection offered by a Type 4 suit because they are exposed to heavy liquid aerosols as well as airborne solid particulates.

Type 4 suits provide better protection against virus contamination.

FEATURES:

- Type 4, 5 & 6 Certified Category III
- Anti-Static to EN 1149-5
- Barrier to Radioactive Particles Class 1
- Barrier to Infectious Agents EN 14126
- Self-Adhesive Storm Flap Over Zip

SUITABLE APPLICATIONS:

- Pharmaceutical
- Laboratory
- Cleanroom

- Forensic Science
- Medical

TAPED SEAMS:

The highest level of holdout against inward leakage is provided by taped seams. The two of edges of the fabric are serged together and then tape is use to completely cover the seam and provide the highest level of leak resistance. The tape is usually selected to have similar chemical resistance as the fabric of the coverall. The tape also makes the seam physically stronger.



TYPE 3, 4, 5 & 6 COVERALL

DESCRIPTION:

A type 3, 4, 5 & 6 coverall which is highly resistant against chemical permeation, offering high levels of protection against even the most corrosive chemicals. Made from a thick 88gsm heavy weight polypropylene/polyethylene multilayer laminated material, it is also tested to provide protection against biological hazards including viruses, bacteria and bloodborne pathogens, as well as particulate radioactive contamination (level 2).

The coverall features utrasonically tape welded seams and a self-adhesive chin strap for optimum protection. The elasticated hood, half waist, cuffs and ankles ensure a good fit and user comfort. Both wrists feature thumb loops.

FEATURES:

- Type 3, 4, 5 & 6 Certified Category III
- 88gsm Heavyweight Fabric
- Self-Adhesive Chin Strap
- Self-Adhesive Bi-Fold Storm Flap
- Silicone and Latex Free

SUITABLE APPLICATIONS:

- Laboratory
- Cleanroom
- Liquid Chemical Handling
- Contamination Control
- Medical
- Emergency Response
- Nuclear Facility Maintenance
- Biological Protection

TAPED SEAMS:

The highest level of holdout against inward leakage is provided by taped seams. The two of edges of the fabric are serged together and then tape is use to completely cover the seam and provide the highest level of leak resistance. The tape is usually selected to have similar chemical resistance as the fabric of the coverall. The tape also makes the seam physically stronger.





DESCRIPTION:

A superior quality garment manufactured from breathable liquid resistant microporous material. The material allows the skin to breathe whilst resisting the penetration of many different non hazardous liquids and particles. The material is strong and garments have a front zip. No pockets. Typical applications include laboratory, low classification clean room, pharmaceutical, food processing, packing areas and medical.

A suitable alternative for when only partial body protection is required.

FEATURES:

- Breathable Liquid Resistant Microporous Material
- · Resists Penetration of Non Hazardous Liquids and Particles
- Comfortable Knitted Cuffs
- Quality Zip
- No Pockets
- CE and UKCA Marked Category III PPE for Partial Body Protection

SUITABLE APPLICATIONS:

- Laboratory
- Low-Classification Cleanroom
- Pharmaceutical

- Food Processing
- Packing Areas
- Medical

SERGED SEAMS:

A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally used for chemicals protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.

EN 1149-5: Antistatic





EN 14126:

EN 13034: Spray Tight (Type 6)



CE 0598

Size	Chest Girth (cm)	Height (cm)*		
S	95	128		
М	98	128		
L	102	134		
XL	107	136		
XXL	110	148		
XXXL	115	152		

*Length of the garment, measured from shoulder to knee.











Manufactured from 45g spunbond polypropylene. This is strong, durable material offering basic protection. The garments are slightly transparent.

High quality, non-woven polypropylene coats which provide visitors and production staff with a simple, hygienic and effective barrier against dirt, grease and non-hazardous dusts. They are also free of pockets to comply with hygiene regulations, making them idea for food processing areas, as well as in laboratories, paint shops and other low-risk applications.

The coats come in a range of sizes and with a generous cut to help ensure wearers stay comfortable and movement isn't restricted.

This garment is not liquid or chemical resistant.

For Minimal Risk Applications Only.

FEATURES:

- Collar
- Strong, durable Fabric.
- Quality Zip
- No Pockets
- Generous Cut for comfort
- Category I PPE (Minimal Risk) under EU Directive 2016/425

SUITABLE APPLICATIONS:

- **Minimal Risk Applications**
- Paint Shops

- General Cleaning/Maintenance

- Laboratories
 - Food Industry

AVAILABLE OPTIONS:

- Zip Fastening White Only
 - Velcro Fastening White or Blue

Size	Chest Girth (cm)	Height (cm)*
S	112	98
М	128	100
L	132	102
XL	144	104
XXL	168	108
		• • • • •

*Length of the garment, measured from shoulder to knee.



- Cat I Minimal Risk
- Basic Protection
- Durable

Optimum UPPLIES LT rotectio

Zip or Velcro Closure

DESCRIPTION:

Our range of coveralls and lab coats are complemented by a range of protective accessories, which can be used in conjunction with our coveralls, laboratory coats or on their own.

All accessories comply with EN 13034 (Type PB[6]), EN 14126 (Protection Against Infectious Agents) and EN 1149-5 (Anti-Static), and are therefore CE and UKCA marked as Category III PPE for Partial Body Protection. They are all manufactured from our comfortable, low-linting microprous material.



Cat III PPE Partial Body Protection 0598 Type 6 Spray Protection SUITABLE APPLICATIONS: Maintenance Laboratory Cleanroom Food Processing Pharmaceutical **Packing Areas Forensic Science** Painting • Medical Automotive Cleaning

OVERSHOES



Lint-free microporous shoe covers with elasticated ankles. High quality and durable. Suitable for a range of applications, including those involving work in a sterile environment.

Available in 2 different sizes.

FEATURES:

- Lint Free
- Resistant to Liquid Splash and Particles
- Breathable Microporous
- Anti-Static

AVAILABLE SIZES:

- Regular UK Sizes 4 to 7
- · Large UK Sizes 7 to 12 (Shoes) and All Boots

ANTI-SLIP OVERSHOES



Anti-slip version of our microporous shoe covers. A tough but cost-effective way of limiting contamination that enters an environment at ground level. Strong and durable as well as resistant to chemical splash.

Suitable for a range of applications, including those involving work in a sterile environment. This overshoe has an anti-slip PVC leather sole, making it more slip-resistant.

FEATURES:

- Lint Free
- Resistant to liquid splash and particles
- Breathable Microporous
- Anti-Slip PVC Soles

AVAILABLE SIZES:

- Regular UK Sizes 4 to 7
- Large UK Sizes 7 to 12 (Shoes) and All Boots

MICROPOROUS ACCESSORIES

OVERBOOTS



These overboots are made from manufactured from the same soft, breathable microporous material as our Type 5 & 6 coveralls, which is strong and resistant to chemical splash and dust. Proven to reduce microbiological growth and contamination in aseptic conditions. Boot covers are suitable for both male and female use, and are a universal size.

FEATURES:

- Lint Free
- Breathable Microporous
- Elasticated Ankles
- Can be Worn Over Outdoor Shoes
- Universal Size
- Cases of 300 (150 Pairs)

ANTI-SLIP OVERBOOTS



These overboots are manufactured from the same soft, breathable microporous material as our Type 5 & 6 coveralls, which is strong and resistant to chemical splash and dust. Proven to reduce microbiological growth and contamination in aseptic conditions. Boot covers are suitable for both male and female use, and are a universal size.

PVC leather anti-slip sole reduces the risk of slipping.

FEATURES:

- Lint Free
- Breathable Microporous
- Elasticated Ankles
- Anti-Slip PVC Leather Sole
- Can be Worn Over Outdoor Shoes
- Universal Size
- Cases of 150 (75 Pairs)

ELASTICATED OVERSLEEVES



Lint-free, breathable microporous sleeves covers with elasticated cuffs. Strong and resistant to dust and chemical splash. Suitable for a range of applications, including in cleanrooms.

Can be used to protect either the wearer from their environment, or the environment from the wearer.

FEATURES:

- Lint Free
- · Anti-Static
- Breathable Microporous
- · Elasticated at Both Ends
- White
- Cases of 200 (100 Pairs)

KNITTED OVERSLEEVES



Lint-free, breathable microporous sleeves covers with comfortable knitted cuffs. Strong and resistant to dust and chemical splash. Suitable for a range of applications, including in cleanrooms.

Can be used to protect either the wearer from their environment, or the environment from the wearer.

FEATURES:

- Lint Free Fabric
- Low-Linting Cuffs
- · Elasticated Top
- · Comfortable Knitted Cuffs
- Anti-Static
- Breathable Microporous
- White
- Cases of 200 (100 Pairs)

Fabrics

There are four materials that are typically used for disposable garments in cleanroom and hygienic laboratory environments. The four standard materials are Tyvek[™]*, microporous film, SMS and polypropylene. Optimum Protection[™] type 5 & 6 coveralls are made from breathable, microporous fabric with a comfortable design that uses lint-free, anti-static material and a flap to cover the zip. They also have the added benefits of comfortable knitted cuffs (rather than elasticated ones) and a sealable storm flap for extra liquid protection. In addition, they have a high level of endurance and are resistant to non-hazardous liquids and dust particles.

Microporous material works well in areas that are constantly wet and optimum protection is required. Both Tyvek and microporous will be hot to wear, but do offer limited breathability. Both materials work extremely well for optimum protection.

SMS and polypropylene have varying filtration rates since the thickness of the material determines the amount of protection. SMS ranges from 45 gsm (grams per square meter) to 55 gsm or 1.4oz (ounce per square yard) to 1.8oz. Filtration rate is 10 microns for 55 gsm vs 30 microns for 45 gsm. SMS will shed liquids for a period of time but is not a complete barrier. SMS is more breathable than microporous, so it is less suited for cleanroom or laboratory use.

Polypropylene is the least protective of the materials and has a holdout range of 50 to 70 microns based on material weights of 45 gsm to 30 gsm for 1.4oz to 1.0oz. Many facilities will use polypropylene for visitors and others that will have minimal exposure within the cleanroom or lab area for brief periods of time.

Leading Brands

Optimum Protection™

Optimum Protection[™] Type 5 & 6 coveralls are a superior quality garment manufactured from breathable, liquid resistant microporous material. The material allows the skin to breath whilst resisting the penetration of many different non-hazardous liquids and particles. The material is strong and our garment offers knitted cuffs for a more comfortable fit. Typical applications include laboratory, cleanroom, pharmaceutical, food processing, forensic science, medical and paint spray. Additionally, all Optimum Protection[™] branded coveralls provide protection against biohazards, including viruses, as tested by EN 14126.

Tyvek™

Dupont[™] created Tyvek[™] in 1944 using a process to shred and process polypropylene fibres (HDPE) to form a synthetic paper. Tyvek[™] did not come onto the market until 1961. Tyvek[™] has the smooth side facing out while industrial Tyvek[™] garments have the rough side out. The rough side will attract and hold micron size particles and should not be used for cleanroom environment.

Both Tyvek and microporous film will have the highest particle filtration efficiency up to 0.5 microns. The microporous film has a barrier to particles as small as 1 micron.

Function

The primary function of any Coverall or Laboratory coat is to either provide protection of the user from his or her working environment or to protect his or her working environment from street clothing. In the case of the DIY enthusiasts painting his home, the requirement is simply to protect his normal clothing from dust and dirt associated with normal home DIY activities. In the case of the laboratory operator the requirements will be more demanding, here not only might there be a need to provide the operator with laboratory coat or coverall protection from splashes of liquids, but to provide a barrier to prevent dirt and other forms of contamination from being deposited on the product

People disperse particles from their bodies (e.g., skin, hair, perspiration, oil) and from their indoor, non-cleanroom clothing at a rate of several million particles per minute and several hundred bacteria-carrying particles per minute. According to ISO 14644-5, the primary function of cleanroom clothing is to act as a barrier filter that protects product and processes from human contamination. It should be:

- Made from a fabric that filters human-dispersed contamination.
- · Comfortable.
- Designed to envelop a person, preventing significant amounts of unfiltered body emissions to be dispersed into the cleanroom.

*Tyvek[™] is a trademark of DuPont.

Factors to Consider When Selecting Protective Clothing

Seams

Serged Seams:

A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally used for chemical protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.

Bound Seams:

A bound seam joins two pieces of material with an overlay of similar materials and is chain stitched through all the layers for a clean finished edge. This provides superior liquid and particle repellency compared to serged seams, though bound seams are not liquid-tight.

Taped Seams:

The highest level of holdout against leakage is provided by taped seams. The two of edges of the fabric are serged together and then tape is use to completely cover the seam and provide the highest level of leak resistance. The tape is usually selected to have similar chemical resistance as the fabric of the coverall. The tape also makes the seam physically stronger.

Heat-Sealed Seams:

A heat-sealed seam is sewn and then sealed with a heat activated tape. This method results in an impervious seam which is completely liquid-proof. It is similar to the taped seam method, but the tape is thermally sealed over the seam, providing an additional barrier of protection against particls and liquids.

Factors to Consider When Selecting Protective Clothing

Coverall Standards

Type 1 / EN943-1:

Specifies the minimum requirements, test methods, marking and information supplied by the manufacturer for the following categories of ventilated/non-ventilated limited-use and reusable chemical protective suits, including component parts such as gloves and boots, which may be specified elsewhere.

Type 1: gas-tight chemical protective suit.

Type 1a: gas-tight chemical protective suit with a breathable air supply, independent of the ambient

atmosphere, e.g. a self-contained, open-circuit, compressed-air breathing apparatus, worn inside the chemical protective suit.

Type 1b: gas-tight chemical protective suit with an independent breathable air supply e.g. a self-contained, opencircuit, compressed-air breathing apparatus, worn outside the chemical protective suit.

Type 1c: gas-tight chemical protective suit with a breathable air system providing positive pressure, e.g. an airline.

Type 1 ET: Specifies the minimum requirements for the chemical protective suits used by emergency teams (ET), including component parts such as gloves and boots, which may be specified elsewhere.

Type 2 / EN 943-1:

Specifies the minimum requirements, test methods, marking and information supplied by the manufacturer for the following categories of ventilated/non-ventilated limited-use and reusable chemical protective suits, including component parts such as gloves and boots, which may be specified elsewhere.

Type 2: non-gas-tight chemical protective suit. A non-gas-tight chemical protective suit with a breathable air system providing positive pressure.

Type 3 / EN14605:

Specifies the minimum requirements for the following categories of limited-use and reusable chemical protective clothing:

Full-body protective clothing with jet-tight connections between the different parts of the clothing (Type 3: liquid-tight clothing), and, if applicable, with liquid-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European standards.

Examples of such clothing are one-piece coveralls or two-piece suits, with or without gloves, hoods, visors, integrated socks and boot covers.

Partial body protection garments offering protection against permeation of chemical liquids to specific parts of the body.

Examples of such garments are: laboratory coats, jackets, trousers, aprons, sleeves, hoods (without air supply) etc. As partial body protection leaves some parts of the body unprotected, this document only specifies the performance requirements for the clothing material and the seams.

Type 4 / EN14605:

Specifies the minimum requirements for the following categories of limited-use and reusable chemical protective clothing: Full-body protective clothing with spray-tight connections between the different parts of the clothing (Type 4: spray-tight clothing) and, if applicable, with spray-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European standards. Examples of such clothing are one-piece coveralls or twopiece suits, with or without gloves, hoods, visors, integrated socks and boot covers. Partial body protection garments offering protection against permeation of chemical liquids to specific parts of the

body. Examples of such garments are: laboratory coats, jackets, trousers, aprons, sleeves, hoods (without air supply) etc. As partial body protection leaves some parts of the body unprotected, this document only specifies the performance requirements for the clothing material and the seams.









TYPE 2

Factors to Consider When Selecting Protective Clothing

Coverall Standards (Continued)

Type 5 / EN ISO 13982-1:

Specifies the minimum requirements for chemical protective clothing resistant to penetration by airborne solid particles (Type 5) These garments are full-body protective items covering the trunk, arms and legs, such as one-piece coveralls or two-piece suits, with or without hoods, visors and foot protection. Requirements for component parts such as hoods, gloves, boots, visors or respiratory protective equipment may be specified in other European standards.

Type 6 / EN ISO 13034:

Specifies the minimum requirements for limited-performance, limited-use and reusable chemical protective clothing. Limited-performance chemical protective clothing is intended for use in cases of potential exposure to light sprays, liquid aerosols or low- pressure, low-volume splashes, which do not require a complete liquid permeation barrier (at molecular level). The scope of this standard covers both chemical protective suits (Type 6) and partial body protection garments (Type PB [6]). Chemical protective suits (Type 6) cover and protect at least the trunk and the limbs, e.g. one-piece coveralls or two-piece suits, with or without hoods, integrated socks or boot covers. This standard specifies the minimum requirements for the connections between the different parts of Type 6 suits, by using a whole-suit spray test according to a variant of EN



TYPE 5

468:1994, as described in 5.2. Partial body protection garments e.g. coats, aprons, sleeves etc. of similar limited performance (Type PB [6]) cover and protect specific parts of the body and are not subjected to the whole-suit test.

19 Coverall Comparison Chart

	Optimum Type 5 & 6 Microporous	Optimum Type 5 & 6 SMS	Chemsplash Cool Type 5 & 6	BioClean-D Type 5 & 6	Tyvek 500 Xpert Type 5 & 6	Tyvek 600 Plus Type 4	Simsafe Type 4
Our SKU	C56	C56SMS	CS-C	N56-ST	TY-C	TY-CP	SS45
Colours	White	White, Red, Blue	White/Blue	White	White	White	White
Material	Microporous Film	SMS	Microporous Film & SMS	Microporous	Tyvek	Tyvek	Bicomponent Fiber
Sterility	Non-Sterile	Non-Sterile	Non-Sterile	Sterile	Non-Sterile	Non-Sterile	Sterile
Storm Flap	Self-Adhesive	Self-Adhesive	Self-Adhesive	Basic Flap	Basic Flap	Self-Adhesive	Self-Adhesive
Cuffs	Knitted	Knitted	Knitted	Elasticated	Elasticated	Elasticated	Elasticated
Seam Type	Serged	Serged	Serged	Bound	Serged	Taped	Heat-Sealed
			Protectio	n Level			
Liquid Jet EN 14605)	×	×	×	×	*	~	~
Solid Particulates (EN 13982-1)	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓
Reduced Spray (EN 13034)	~	✓	\checkmark	\checkmark	\checkmark	\checkmark	~
Biological Hazard (EN 14126)	~	×	×	×	\checkmark	~	×
Anti-Static (EN 1149-5)	~	~	✓	\checkmark	~	~	~
Radioactive Particles (EN 1073-1)	~	✓	✓	×	✓	~	×
			Suitable for	[.] Use In			
Construction	~	~	~	✓	\checkmark	~	~
Asbestos Removal	~	~	~	✓	\checkmark	~	~
Pharmaceutical	~	~	~	✓	~	~	~
Laboratory	~	\checkmark	\checkmark	\checkmark	\checkmark	~	~
Cleanroom	~	~	~	\checkmark	~	~	~
Food Industry	~	~	✓	\checkmark	~	~	~
Spray Painting	~	~	~	✓	~	~	~
Chemical Handling	~	~	~	✓	~	~	~
Cleaning & Maintenance	~	~	~	\checkmark	~	~	~
Forensics	~	✓	✓	\checkmark	\checkmark	~	✓
Disease Protection	~	×	×	×	✓	~	×
Cytostatics	×	×	×	×	×	×	~

Coverall Selection Flow Chart





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