



IC183 B WH DS

# Tyvek® IsoClean®

DuPont™ Tyvek® IsoClean® unhooded coverall model IC 183 B WH DS. Clean-processed and gamma-sterilized. Bound internal seams. Tunnelled elastics at wrists and ankles. Elasticated waist at back. Tyvek® covered elasticated thumb loops. Zipper closure. Storm flap. Aseptically folded. CE-certified. White.

Name	Description
Full Part Number	IC0183BWHDS
Fabric/Materials	Tyvek® IsoClean®
Design	Unhooded coverall with elastics
Seam	Bound
Color	White
Quantity/Box	25 per box, individually double packed. 2 polyethylene liners. Cardboard box.

## FEATURES & PRODUCT DETAILS

DuPont™ Tyvek® IsoClean® unhooded coverall with bound neck, model IC 183 B WH DS. Available in sizes SM to 3X. Clean-processed and gamma-sterilized. Bound internal seams. Elasticated waist at back for good fit. Tyvek® covered elasticated thumb loops. Tunnelled elastication at wrists and ankles. Front zipper closure. Storm flap.

Tyvek® IsoClean® delivers an ideal balance of protection, durability and comfort. Made of high density polyethylene using a patented flash spinning process. Tyvek® IsoClean® provides an inherent barrier to particles, microorganisms and non-hazardous water-based light liquid splash. Tyvek® IsoClean® is also breathable and exceptionally low linting.

All DuPont™ Tyvek® IsoClean® clean-processed and sterile garments (option code DS) are packed in a dual barrier packaging system, consisting of an inner and outer easy tear cleanroom bag. The packaging system serves as a key element for contamination risk reduction when transferring apparel into clean areas.

Garments and accessories made of clean-processed and sterile Tyvek® IsoClean® are typically used in cleanrooms within the biotech, pharmaceutical, medical device manufacturing, food processing, cosmetics industry as well as in other critical or controlled environments.

- Certified according to Regulation (EU) 2016/425
- Clean-processed and sterilised by gamma-irradiation to SAL of  $10^{-6}$  (ISO 11137-1)
- Full traceability on all sterilized apparel with certificates of sterility available
  
- Suitable for use in GMP class A/B (ISO Class 5) clean rooms\*
- Chemical protective clothing, Category III, Type 5-B and 6-B.
- EN 14126 (barrier to infective agents), EN 1073-2 (protection against radioactive contamination)

## Physical Properties



Data relating to mechanical performance of the fabrics used in DuPont chemical protective clothing, listed for the selected garment according to the test methods and relevant European standard, if applicable. Such properties, including abrasion and flex-cracking resistance, tensile strength and puncture resistance can help in the assessment of protective performance.

Property	Test Method	Typical Result	EN
Abrasion Resistance <sup>7</sup>	EN 530 Method 2	>10 cycles	1 of 6 <sup>1</sup>
Basis Weight	DIN EN ISO 536	45 g/m <sup>2</sup>	N/A
Colour.	N/A (598)	White	N/A
Exposure to high Temperature	N/A (598)	Melting point 135 °C	N/A
Flex Cracking Resistance <sup>7</sup>	EN ISO 7854 Method B	>100000 cycles	6 of 6 <sup>1</sup>
Puncture Resistance	EN 863	>5 N	1 of 6 <sup>1</sup>
Resistance to water penetration	DIN EN 20811	7 kPa	N/A
Surface Resistance at RH 25%, inside <sup>7</sup>	EN 1149-1	2 <sup>10</sup> Ohm	N/A
Tensile Strength (MD)	DIN EN ISO 13934-1	>30 N	1 of 6 <sup>1</sup>
Tensile Strength (XD)	DIN EN ISO 13934-1	>30 N	1 of 6 <sup>1</sup>
Thickness (PPSH-249)	DIN EN ISO 534	185 µm	N/A
Trapezoidal Tear Resistance (MD)	EN ISO 9073-4	>10 N	1 of 6 <sup>1</sup>
Trapezoidal Tear Resistance (XD)	EN ISO 9073-4	>10 N	1 of 6 <sup>1</sup>

1 According to EN 14325 2 According to EN 14126 3 According to EN 1073-2 4 According to EN 14116 12  
According to EN 11612 5 Front Tyvek ® / Back 6 Based on test according to ASTM D-572 7 See Instructions for  
Use for further information, limitations and warnings > Larger than < Smaller than N/A Not Applicable STD DEV  
Standard Deviation

## GARMENT PERFORMANCE



Information relating to the protective performance of a garment according to European standards where applicable. Includes important characteristics such as protection against radioactive contamination, seam strength and shelf life. Inward leakage and resistance to penetration by liquids, according to the relevant Type classification, are also detailed.

Property	Test Method	Typical Result	EN
Nominal protection factor <sup>7</sup>	EN 1073-2	>50	2 of 3 3
Seam Strength	EN ISO 13935-2	>30 N	1 of 6 1
Shelf Life <sup>7</sup>	N/A (598)	5 years	N/A
Type 5: Inward Leakage <sup>11</sup>	EN ISO 13982-2	3 %	N/A
Type 5: Inward Leakage of Airborne Solid Particulates	EN ISO 13982-2	Pass	N/A
Type 6: Resistance to Penetration by Liquids (Low Level Spray Test)	EN ISO 17491-4, Method A	Pass	N/A

1 According to EN 14325 3 According to EN 1073-2 12 According to EN 11612 13 According to EN 11611 5 Front Tyvek ® / Back 6 Based on test according to ASTM D-572 7 See Instructions for Use for further information, limitations and warnings 11 Based on the average of 10 suits, 3 activities, 3 probes > Larger than < Smaller than N/A Not Applicable \* Based on lowest single value

COMFORT



The comfort of a protective garment during use is largely determined by its weight, its permeability to vapour and air (breathability) and insulating properties. Data on these attributes is provided according to test method and, as with other data, can be compared by garment.

Property	Test Method	Typical Result	EN
Air Permeability (Gurley method)	ISO 5636-5	4 s	N/A
Air Permeability (Gurley method)	ISO 5636-5	Yes	N/A
Thermal Resistance, Rct	EN 31092/ISO 11092	10*10 <sup>-3</sup> m <sup>2</sup> *K/W	N/A
Thermal Resistance, clo value	EN 31092/ISO 11092	0.065 clo	N/A
Water Vapour Resistance, Ret	EN 31092/ISO 11092	6.8 m <sup>2</sup> *Pa/W	N/A

2 According to EN 14126    5 Front Tyvek ® / Back    > Larger than    < Smaller than    N/A Not Applicable

PENETRATION AND REPELLENCY



A specific test method, EN ISO 6530, is used to measure the indexes of penetration, absorption and repellency of protective clothing material exposed to liquid chemicals. Results listed here reflect the penetration resistance and repellency of DuPont fabrics to 30% sulphuric acid and 10% sodium hydroxide.

Property	Test Method	Typical Result	EN
Repellency to Liquids, Sodium Hydroxide (10%)	EN ISO 6530	>90 %	2 of 3 <sup>1</sup>
Repellency to Liquids, Sulphuric Acid (30%)	EN ISO 6530	>95 %	3 of 3 <sup>1</sup>
Resistance to Penetration by Liquids, Sodium Hydroxide (10%)	EN ISO 6530	<5 %	2 of 3 <sup>1</sup>
Resistance to Penetration by Liquids, Sulphuric Acid (30%)	EN ISO 6530	<1 %	3 of 3 <sup>1</sup>

1 According to EN 14325    > Larger than    < Smaller than

BIOLOGICAL BARRIER



Detailed information on the protective performance (resistance to penetration) of DuPont clothing when exposed to biologically contaminated aerosols, liquids and dusts as well as blood, body fluids and blood-borne pathogens. Sorted by relevant European standard.

Property	Test Method	Typical Result	EN
Resistance to Penetration by Biologically Contaminated Aerosols	ISO/DIS 22611	Pass	1 of 3 <sup>2</sup>
Resistance to Penetration by Blood and Body Fluids using Synthetic Blood	ISO 16603	Pass	3 of 6 <sup>2</sup>
Resistance to Penetration by Blood-borne Pathogens using Bacteriophage Phi-X174	ISO 16604 Procedure D	No classification	No classification <sub>2</sub>
Resistance to Penetration by Contaminated Liquids	EN ISO 22610	Pass	1 of 6 <sup>2</sup>
Resistance to Penetration by Contaminated Solid Particles	ISO 22612	Pass	1 of 3 <sup>2</sup>

2 According to EN 14126    > Larger than    < Smaller than



CLEANLINESS



Particle Shedding (Helmke Drum) and Bacterial Filtration Efficiency Data

Property	Test Method	Typical Result	EN
Bacterial Filtration Efficiency (3 µm)	ASTM F2101	98.4 % ± 0.9 % STD DEV	N/A
Particle Shedding (Helmke Drum)	IEST-RP-CC003.4	Category I	N/A

5 Front Tyvek ® / Back    > Larger than    < Smaller than    N/A Not Applicable    STD DEV Standard Deviation

HEAT AND FLAME



Information relating to the heat performance of fabrics used in DuPont chemical protective clothing, including heat resistance, limited flame spread behaviour, resistance to molten metal splashes and protection against arc flash.

Property	Test Method	Typical Result	EN
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4 According to EN 14116    12 According to EN 11612

## **WARNING**

- The information provided herein corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials or additives or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights.

## PERMEATION DATA



Permeation is the process by which a solid, liquid or gaseous chemical moves through a protective clothing fabric at a molecular level. Permeation data assist in the selection of the most appropriate protective garment for a particular application and in the estimation of how long it can be safely worn. Standardised test methods are used to determine the resistance of DuPont materials to permeation, the results of which can be selected according to a specific chemical, chemical class or fabric.

Hazard / Chemical Name	Physical State	CAS	BT Act	BT 0.1	BT 1.0	EN	SSPR	MDPR	Cum 480	Time 150	ISO
Carboplatin (10 mg/ml)	Liquid	41575-94-4	>240	>240	>240	5	<0.001	0.001			
Carmustine (3.3 mg/ml, 10 % Ethanol)	Liquid	154-93-8	imm	imm	>240	5	<0.3	0.001			
Cisplatin (1 mg/ml)	Liquid	15663-27-1	>240	>240	>240	5	<0.001	0.001			
Cyclo phosphamide (20 mg/ml)	Liquid	50-18-0	imm	>10	>240	5	na	0.003			
Doxorubicin HCl (2 mg/ml)	Liquid	25136-40-9	>240	>240	>240	5	<0.001	0.001			
Etoposide (Toposar®, Teva) (20 mg/ml, 33.2 % (v/v) Ethanol)	Liquid	33419-42-0	>240	>240	>240	5	<0.01	<0.01			
Fluorouracil, 5- (50 mg/ml)	Liquid	51-21-8	imm	imm	imm		na	0.001			
Gemcitabine (38 mg/ml)	Liquid	95058-81-4	imm	>60	>240	5	<0.4	0.005			
Ifosfamide (50 mg/ml)	Liquid	3778-73-2	imm	imm	>60	3	na	0.003			
Oxaliplatin (5 mg/ml)	Liquid	63121-00-6	imm	imm	imm		na	0.001			
Paclitaxel (Hospira) (6 mg/ml, 49.7 % (v/v) Ethanol)	Liquid	33069-62-4	>240	>240	>240	5	<0.01	<0.01			
Thiotepa (10 mg/ml)	Liquid	52-24-4	imm	imm	imm		na	0.001			

Important Note.

