Technical Data Sheet

# DuPont™ Tyvek® IsoClean® , Model IC 458 B WH 00

CAT III PB[6] EN 14126

## Tyvek® IsoClean®

DuPont™ Tyvek® IsoClean® slip-retardant boot cover model IC458B00. Tunnelled elastication at shin. Ties. Elasticated ankle. Gripper™ sole. Bound internal seams. Not clean-processed and not sterilized. White.

## Certifications

- Certified according to Regulation (EU) 2016/425
- Partial body chemical protective clothing, Category III, Type PB [6-B]
- EN 14126 (barrier to infective agents)
- Suitable for use in GMP class C/D (ISO Class 6-9) clean rooms

## Packaging(Quantity/Box)

100 per box, bulk packed. 2 polyethylene liners. Cardboard box.

| Product Size | Article Number | Additional info |
|---|---|---|
| MD | D15531626 | |
| LG | D15531627 | |

Full Part Number: IC0458BWH00

## PHYSICAL PROPERTIES

| Property | Test Method | Typical Result | EN |
|---|---|---|---|
| Abrasion Resistance [7] | EN 530 Method 2 | >100 cycles | 2/6 [1] |
| Colour | N/A | White | N/A |
| Flex Cracking Resistance [7] | EN ISO 7854 Method B | >100000 cycles | 6/6 [1] |
| Puncture Resistance | EN 863 | >10 N | 2/6 [1] |
| Tensile Strength (MD) | DIN EN ISO 13934-1 | >30 N | 1/6 [1] |
| Tensile Strength (XD) | DIN EN ISO 13934-1 | >30 N | 1/6 [1] |
| Trapezoidal Tear Resistance (MD) | EN ISO 9073-4 | >10 N | 1/6 [1] |
| Trapezoidal Tear Resistance (XD) | EN ISO 9073-4 | >10 N | 1/6 [1] |

**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

| Property | Test Method | Typical Result | EN |
|---|---|---|---|
| Seam Strength | EN ISO 13935-2 | >30 N | 1/6 [1] |
| Type PB 6: Partial Body Protection | EN 13034 | 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

## PENETRATION AND REPELLENCY

| Property | Test Method | Typical Result | EN |
|---|---|---|---|
| Repellency to Liquids, Sodium Hydroxide (10%) | EN ISO 6530 | >95 % | 3/3 [1] |
| Repellency to Liquids, Sulphuric Acid (30%) | EN ISO 6530 | >95 % | 3/3 [1] |
| Resistance to Penetration by Liquids, Sodium Hydroxide (10%) | EN ISO 6530 | <1 % | 3/3 [1] |
| Resistance to Penetration by Liquids, Sulphuric Acid (30%) | EN ISO 6530 | <1 % | 3/3 [1] |

**1** According to EN 14325 **>** Larger than **<** Smaller than

## BIOLOGICAL BARRIER

| Property | Test Method | Typical Result | EN |
|---|---|---|---|
| Resistance to Penetration by Biologically Contaminated Aerosols | ISO/DIS 22611 | Pass | 1/3 [2] |
| Resistance to Penetration by Blood and Body Fluids using Synthetic Blood | ISO 16603 | 3,5 kPa | 3/6 [2] |
| Resistance to Penetration by Blood-borne Pathogens using Bacteriophage Phi-X174 | ISO 16604 Procedure C | No classification | No classification [2] |
| Resistance to Penetration by Contaminated Liquids | EN ISO 22610 | ≤ 15 min | 1/6 [2] |
| Resistance to Penetration by Contaminated Solid Particles | ISO 22612 | Pass | 1/3 [2] |

**2** According to EN 14126 **>** Larger than **<** Smaller than

Permeation Data for Tyvek® IsoClean®

| Hazard / Chemical Name | Physical State | CAS | BT Act | BT 0.1 | BT 1.0 | EN | SSPR | MDPR | Cum 480 Time 150 ISO |
|---|---|---|---|---|---|---|---|---|---|
| Acetic acid (30%) | Liquid | 64-19-7 | imm | imm | imm | | 13.5 | 0.001 | |
| Ammonium hydroxide (16%) | Liquid | 1336-21-6 | imm | imm | imm | | 20.3 | 0.005 | |
| Ammonium hydroxide (28% - 30%) | Liquid | 1336-21-6 | imm | imm | imm | | 16.7 | 0.014 | |
| 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 | |
| Caustic ammonia (16%) | Liquid | 1336-21-6 | imm | imm | imm | | 20.3 | 0.005 | |
| Caustic ammonia (28% - 30%) | Liquid | 1336-21-6 | imm | imm | imm | | 16.7 | 0.014 | |
| Caustic soda (10%) | Liquid | 1310-73-2 | >240 | >480 | >480 | 6 | <0.005 | 0.005 | |
| Caustic soda (40%) | Liquid | 1310-73-2 | imm | >30 | >240 | 5 | <0.005 | 0.005 | |
| Caustic soda (50%) | Liquid | 1310-73-2 | imm | >30 | >240 | 6 | 0.85 | 0.01 | |
| Caustic soda (>95%, solid) | Solid | 1310-73-2 | >480 | >480 | >480 | 6 | <0.01 | 0.01 | |
| Cisplatin (1 mg/ml) | Liquid | 15663-27-1 | >240 | >240 | >240 | 5 | <0.0002 | 0.0002 | |
| Cyclo phosphamide (20 mg/ml) | Liquid | 50-18-0 | >240 | >240 | >240 | 5 | <0.002 | 0.002 | |
| Dimethyl sulfate | Liquid | 77-78-1 | imm | imm | imm | | >160 | 0.02 | |
| Doxorubicin HCl (2 mg/ml) | Liquid | 25136-40-9 | >240 | >240 | >240 | 5 | <0.003 | 0.003 | |
| Ethane 1,2-diol | Liquid | 107-21-1 | imm | imm | imm | | 6.6 | 0.002 | |
| Ethylene glycol | Liquid | 107-21-1 | imm | imm | imm | | 6.6 | 0.002 | |
| 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 | >30 | 2 | na | 0.001 | |
| Formic acid (30%) | Liquid | 64-18-6 | imm | imm | imm | | nm | 0.001 | |
| Ganciclovir (3 mg/ml) | Liquid | 82410-32-0 | >240 | >240 | >240 | 5 | <0.005 | 0.005 | |
| Gemcitabine (38 mg/ml) | Liquid | 95058-81-4 | imm | >60 | >240 | 5 | <0.4 | 0.005 | |
| Glycerine | Liquid | 56-81-5 | >240 | >480 | >480 | 6 | 0.03 | 0.01 | |
| Glycerol | Liquid | 56-81-5 | >240 | >480 | >480 | 6 | 0.03 | 0.01 | |
| Glycol alcohol | Liquid | 107-21-1 | imm | imm | imm | | 6.6 | 0.002 | |
| Hydrochloric acid (16%) | Liquid | 7647-01-0 | imm | imm | imm | | na | 0.05 | |
| Hydrochloric acid (32%) | Liquid | 7647-01-0 | imm | imm | imm | | na | 0.05 | |
| Hydrogen peroxide (10%) | Liquid | 7722-84-1 | >10 | >10 | >480 | 6 | <0.01 | 0.01 | |
| Hydrogen peroxide (30%) | Liquid | 7722-84-1 | imm | imm | imm | | >0.11 | 0.04 | |

Permeation Data for Tyvek® IsoClean®

| Hazard / Chemical Name | Physical State | CAS | BT Act | BT 0.1 | BT 1.0 | EN | SSPR | MDPR | Cum 480 Time 150 ISO |
|---|---|---|---|---|---|---|---|---|---|
| Ifosfamide (50 mg/ml) | Liquid | 3778-73-2 | imm | imm | >240 | 5 | <0.5 | 0.003 | |
| Irinotecan (20 mg/ml) | Liquid | 100286-90-6 | imm | >240 | >240 | 5 | <0.1 | 0.0028 | |
| Methotrexate (25 mg/ml, 0.1 N NaOH) | Liquid | 59-05-2 | >240 | >240 | >240 | 5 | <0.001 | 0.001 | |
| Mitomycin (0.5 mg/ml) | Liquid | 50-07-7 | >240 | >240 | >240 | 5 | <0.0009 | 0.0009 | |
| Nicotine (9 mg/ml) | Liquid | 54-11-5 | >480 | >480 | >480 | 6 | <0.08 | 0.08 | |
| Nitric acid (10%) | Liquid | 7697-37-2 | >60 | >120 | >480 | 6 | na | 0.05 | |
| Nitric acid (30%) | Liquid | 7697-37-2 | imm | imm | imm | | 4.6 | 0.001 | |
| Oxaliplatin (5 mg/ml) | Liquid | 63121-00-6 | imm | imm | imm | | na | 0.006 | |
| Paclitaxel (Hospira) (6 mg/ml, 49.7 % (v/v) Ethanol) | Liquid | 33069-62-4 | >240 | >240 | >240 | 5 | <0.01 | <0.01 | |
| Phosphoric acid (50%) | Liquid | 7664-38-2 | >480 | >480 | >480 | 6 | <0.05 | 0.05 | |
| Potassium chromate (sat) | Liquid | 7789-00-6 | >480 | >480 | >480 | 6 | <0.005 | 0.005 | |
| Potassium hydroxide (40%) | Liquid | 1310-58-3 | imm | imm | >30 | 2 | 0.7 | 0.001 | |
| Propane -1,2,3-triol | Liquid | 56-81-5 | >240 | >480 | >480 | 6 | 0.03 | 0.01 | |
| Sodium acetate (sat) | Liquid | 127-09-3 | imm | >480 | >480 | 6 | <0.1 | 0.05 | |
| Sodium chloride (9 g/l) | Liquid | 7647-14-5 | >240 | >240 | >240 | 5 | <0.02 | 0.02 | |
| Sodium hydroxide (10%) | Liquid | 1310-73-2 | >240 | >480 | >480 | 6 | <0.005 | 0.005 | |
| Sodium hydroxide (40%) | Liquid | 1310-73-2 | imm | >30 | >240 | 5 | <0.005 | 0.005 | |
| Sodium hydroxide (50%) | Liquid | 1310-73-2 | imm | >30 | >240 | 6 | 0.85 | 0.01 | |
| Sodium hydroxide (>95%, solid) | Solid | 1310-73-2 | >480 | >480 | >480 | 6 | <0.01 | 0.01 | |
| Sodium hypochlorite (10-15 % active chlorine) | Liquid | 7681-52-9 | >240 | >240 | >480 | 6 | <0.6 | 0.05 | |
| Sodium hypochlorite (5.25-6%) | Liquid | 7681-52-9 | >480 | >480 | >480 | 6 | <0.025 | 0.025 | |
| Sulfuric acid (18%) | Liquid | 7664-93-9 | >240 | >240 | >480 | 6 | <0.05 | 0.05 | |
| Sulfuric acid (30%) | Liquid | 7664-93-9 | >10 | >240 | >240 | 5 | <0.05 | 0.05 | |
| Sulfuric acid (50%) | Liquid | 7664-93-9 | imm | >30 | >60 | 3 | 38 | 0.01 | |
| Sulfuric acid dimethyl ester | Liquid | 77-78-1 | imm | imm | imm | | >160 | 0.02 | |
| Thiotepa (10 mg/ml) | Liquid | 52-24-4 | imm | imm | imm | | na | 0.001 | |
| Vincristine sulfate (1 mg/ml) | Liquid | 2068-78-2 | >240 | >240 | >240 | 6 | <0.001 | 0.001 | |
| Vinorelbine (0.1 mg/ml) | Liquid | 71486-22-1 | >240 | >240 | >240 | 6 | <0.0209 | 0.00209 | |

## Important Note

The permeation data published have been generated for DuPont by independent accredited testing laboratories according to the test method applicable at that time (EN ISO 6529 (method A and B), ASTM F739, ASTM F1383, ASTM D6978, EN369, EN 374-3)
The data is typically the average of three fabrics samples tested.
All chemicals have been tested at an assay of greater than 95 (w/w) % unless otherwise stated.
The tests were performed between 20 °C and 27 °C and at environmental pressure unless otherwise stated.
A different temperature may have significant influence on the breakthrough time.
Permeation typically increases with temperature.

Cumulative permeation data have been measured or have been calculated based on minimum detectable permeation rate.
Cytostatic drugs testing has been performed at a test temperature of 27°C according to ASTM D6978 or ISO 6529 with the additional requirement of reporting a normalized breakthrough time at 0.01 µg/cm²/min.
Chemical warfare agents (Lewisite, Sarin, Soman, Mustard, Tabun and VX Nerve Agent) have been tested according to MIL-STD-282 at 22°C or according to FINABEL 0.7 at 37°C.
Permeation data for Tyvek® is applicable to white Tyvek® 500 and Tyvek® 600 only and is not applicable for other Tyvek® styles or colours.
Permeation data are usually measured for single chemicals. The permeation characteristics of mixtures can often deviate considerably from the behaviour of the individual chemicals.

The permeation data for gloves published have been generated according to ASTM F739 and to ASTM F1383.
The degradation data for gloves published have been generated based on a gravimetric method.
This degradation testing exposes one side of the glove material to the test chemical for four hours. The percent weight change after exposure is measured at four time intervals: 5, 30, 60 and 240 minutes.

Degradation Ratings:

- E: EXCELLENT (0-10% Weight Change)
- G: GOOD (11-20% Weight Change)
- F: FAIR (21-30% Weight Change)
- P: POOR (31-50% Weight Change)
- NR: NOT RECOMMENDED (Above 50% Weight Change)
- NT: NOT TESTED

Degradation is the physical change in a material after chemical exposure. Typical observable effects may be swelling, wrinkling, deterioration, or delamination. Strength loss may also occur.

Please use the permeation data provided as a part of the risk assessment to assist with the selection of a protective fabric, garment, glove or accessory suitable for your application.
Breakthrough time is not the same as safe wear time. Breakthrough times are indicative of the barrier performance, but results can vary between the test methods and laboratories. Breakthrough time alone is insufficient to determine how long a garment may be worn once the garment has been contaminated. Safe user wear time may be longer orshorter than the breakthrough time depending on the permeation behaviour of the substance, the toxicity of the substance, working conditions and the exposure conditions (e.g. temperature, pressure, concentration, physical state).

Latest Update Permeation Data: 5/5/2020

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.

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- The intended use for Tyvek® IsoClean Accessories, that are not CE certified or certified as PPE Category I, does not include applications that may cause very serious consequences such as irreversible damage to health or death. The user should make the risk assessment to determine the protection required.

For further product information, literature and as well as assistance in locating a local supplier, please visit:

www.safespec.dupont.co.uk

The footnotes can be found on the SafeSPEC™ website.

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