



### PRODUCT INFORMATION

DuPont™ Tyvek® 500 Xpert. Hooded coverall. Ergonomic-protective design. Stitched external seams. Elasticated wrists, ankles and face. Elasticated waist (glued-in). Tyvek® zipper and flap. White.

### ATTRIBUTES

Full Part Number	TY0198SWHAX
Fabric/Materials	Tyvek®
Design	Hooded coverall with elastics
Seam	Stitched (external)
Color	White
Sizes	SM, MD, LG, XL, 2X, 3X, 4X, 5X, 6X, 7X
Quantity/Box	50 per box, 2 inner packs of 25, individually packed

### FEATURES

- Certified according to Regulation (EU) 2016/425.
- Chemical protective clothing, Category III, Type 5-B and 6-B..
- EN 14126 (barrier to infective agents), EN 1073-2 (protection against radioactive contamination).
- Antistatic treatment (EN 1149-5) - on both sides
- Stitched external seams
- Very low inward leakage thanks to optimised design
- Suitable for use in GMP class C/D (ISO Class 6-9) clean rooms

### SIZETABLE

ARTICLE NUMBER	PRODUCT SIZE
D15564326	SM
D15564327	MD
D15564328	LG
D15564329	XL
D15564330	2X
D15564331	3X
D15564342	4X
D15565283	5X
D15565284	6X
D15565285	7X

### PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Abrasion Resistance <sup>7</sup>	EN 530 Method 2	>100 cycles	2/6 <sup>1</sup>
Basis Weight.	DIN EN ISO 536	41.5 g/m <sup>2</sup>	N/A
Colour (PPSH-51)	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	6/6 <sup>1</sup>
Puncture Resistance	EN 863	>10 N	2/6 <sup>1</sup>

## TECHNICAL DATA SHEET

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Resistance to water penetration	AATCC 127	>10 kPa	N/A
Surface Resistance at RH 25%, inside <sup>7</sup>	EN 1149-1	< 2,5 · 10 <sup>9</sup> Ohm	N/A
Surface Resistance at RH 25%, outside <sup>7</sup>	EN 1149-1	< 2,5 · 10 <sup>9</sup> Ohm	N/A
Tensile Strength (MD)	DIN EN ISO 13934-1	>60 N	2/6 <sup>1</sup>
Tensile Strength (XD)	DIN EN ISO 13934-1	>60 N	2/6 <sup>1</sup>
Trapezoidal Tear Resistance (MD)	EN ISO 9073-4	>10 N	1/6 <sup>1</sup>
Trapezoidal Tear Resistance (XD)	EN ISO 9073-4	>10 N	1/6 <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

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Nominal protection factor <sup>7</sup>	EN 1073-2	>50	2/3 <sup>3</sup>
Seam Strength	EN ISO 13935-2	>75 N	3/6 <sup>1</sup>
Shelf Life <sup>7</sup>	N/A (598)	10 years <sup>6</sup>	N/A
Type 5: Inward Leakage <sup>11</sup>	EN ISO 13982-2	1 %	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

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Air Permeability (Gurley method)	TAPPI T460	< 45 s	N/A

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

## PENETRATION AND REPELLENCY

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Repellency to Liquids, Sodium Hydroxide (10%)	EN ISO 6530	>95 %	3/3 <sup>1</sup>
Repellency to Liquids, Sulphuric Acid (30%)	EN ISO 6530	>95 %	3/3 <sup>1</sup>
Resistance to Penetration by Liquids, Sodium Hydroxide (10%)	EN ISO 6530	<1 %	3/3 <sup>1</sup>
Resistance to Penetration by Liquids, Sulphuric Acid (30%)	EN ISO 6530	<1 %	3/3 <sup>1</sup>

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 <sup>2</sup>
Resistance to Penetration by Blood and Body Fluids using Synthetic Blood	ISO 16603	3,5 kPa	3/6 <sup>2</sup>
Resistance to Penetration by Blood-borne Pathogens using Bacteriophage Phi-X174	ISO 16604 Procedure C	Pass	2/6 <sup>2</sup>
Resistance to Penetration by Contaminated Liquids	EN ISO 22610	≤ 15 min	1/6 <sup>2</sup>
Resistance to Penetration by Contaminated Solid Particles	ISO 22612	Pass	1/3 <sup>2</sup>



## TECHNICAL DATA SHEET

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

### CLEANLINESS

PROPERTY	TEST METHOD	TYPICAL RESULT	EN
Dry Linting Propensity, inside	BS 6909	128 Average particle count/17 liters of air	N/A
Dry Linting Propensity, outside	BS 6909	56 Average particle count/17 liters of air	N/A

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

### PERMEATION DATA DUPONT™ TYVEK® 500 XPERT

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	5	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			
Ifosfamide (50 mg/ml)	Liquid	3778-73-2	imm	imm	>240	5	<0.5	0.003	>480		6
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			

## TECHNICAL DATA SHEET

HAZARD / CHEMICAL NAME	PHYSICAL STATE	CAS	BT ACT	BT 0.1	BT 1.0	EN	SSPR	MDPR	CUM 480	TIME 150	ISO
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		>477	5
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		>480	6
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	5	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	5	<0.001	0.001			
Vinorelbine (0.1 mg/ml)	Liquid	71486-22-1	>240	>240	>240	5	<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/cm<sup>2</sup>/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 or shorter 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: 10/24/2022

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.

### WARNING

The garment does not protect against ionizing radiation.

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This garment and/or fabric are not flame resistant and should not be used around heat, open flame, sparks or in potentially flammable environments.

### WARNING

Tyvek® 500, Tyvek® 600, Tyvek® 800 products manufactured before January 2023 did contain 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.

The incident should also be reported to DuPont at +1 (888) 439-2988 so that an investigation can be initiated.

\*Serged and bound seams are degraded by some hazardous liquid chemicals, such as strong acids, and should not be worn when these chemicals are present.

\*Liquid barrier performance varies based on the amount of liquid that may get on the garment, the length of time the liquid is on the garment, applied pressure and certain physical properties of the liquid. Tyvek®400, Tyvek® 400 D, ProShield®, ProShield® 10, ProShield® 60, Tyvek® 400 FC, and ProShield® 70 garments are not appropriate if during use they are getting wet (liquid is dripping or running, or it is wet to the touch) or if spotting is observed on skin or garments worn under the protective garment. Tyvek® 500 and Tyvek® 600 offer improved liquid barrier, but may not be appropriate if spotting is observed on the skin or garments worn under the protective garment. In applications where a higher liquid barrier is needed, consider Tychem® 2000 and Tychem® 4000 garments with taped seams.

\*\*Garments made using Tyvek® 400, Tyvek® 500, Tyvek® 600 and Tyvek® 800 fabrics will burn and possibly melt. None of these garments should be worn near heat, open flames, sparks or any other possible ignition source nor should they be worn in potentially explosive or flammable environments. If these garments do burn or melt while being worn, it may increase the severity of burn injuries even when worn over garments which are flame resistant, including, but not limited to, Nomex® IIIA or Nomex® Comfort garments.

\*CAUTION: This information is based upon technical data that DuPont believes to be 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 informational use by persons having technical skill for evaluation under their 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 have shorter breakthrough times and higher permeation rates than the fabric. Please contact DuPont for specific data. If fabric becomes torn, abraded or punctured, or if seams or closures fail, or if attached gloves, visors, etc. are damaged, end user should discontinue use of garment to avoid potential exposure to chemical. Since conditions of use are outside our control, we make no warranties, express 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 or technical information of DuPont or others covering any material or its use.

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### 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.



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