Technical Data Sheet

Tychem® 2000 C, TCCHA5TYL00

CAT III T3 T4 T5 T6 EN 1073-2

EN 1149-5 EN 14126



Tychem® 2000 C

DuPont™ Tychem® 2000 C. Hooded coverall. Stitched and over-taped seams. Thumb loops. Elastication at wrists, ankles, face and waist. Self-adhesive double zipper flap and chin flap. Yellow.

Certifications

- Certified according to Regulation (EU) 2016/425
- Chemical protective clothing, Category III, Type 3-B, 4-B, 5-B and 6-B
- EN 14126 (barrier to infective agents), EN 1073-2 (protection against radioactive contamination)
- Antistatic treatment (EN 1149-5) - on inside
- Stitched and over-taped seams with barrier tape for protection and strength
- Self-adhesive double zipper flap closure system for higher protection

Packaging(Quantity/Box)

25 per box, individually packed.

Full Part Number: TCCHA5TYL00

PHYSICAL PROPERTIES

Property	Test Method	Typical Result	EN
Abrasion Resistance [7]	EN 530 Method 2	>1500 cycles	5/6 [1]
Basis Weight	DIN EN ISO 536	83 g/m^2	N/A
Bursting Strength (Mullenburst)	ISO 2758	475 kPa	N/A
Colour	N/A (598)	Yellow	N/A
Exposure to high Temperature	N/A (598)	Garments seams opens at ~98 °C	N/A
Exposure to low Temperature	N/A (598)	Flexibility retained down to -73 °C	N/A
Flex Cracking Resistance [7]	EN ISO 7854 Method B	>5000 cycles	3/6 [1]
Flex Cracking Resistance at -30°C	EN ISO 7854 Method B	>500 cycles	N/A
Puncture Resistance	EN 863	>10 N	2/6 [1]
Resistance to Ignition [7]	EN 13274-4 Method 3	No after flame, no drop formation, hole formation	N/A
Resistance to water penetration	DIN EN 20811	>30 kPa	N/A
Surface Resistance at RH 25%, inside [7]	EN 1149-1	< 2,5 • 10^9 Ohm	N/A
Surface Resistance at RH 25%, outside [7]	EN 1149-1	No antistatic treatment	N/A
Tensile Strength (MD)	DIN EN ISO 13934-1	>100 N	3/6 [1]
Tensile Strength (XD)	DIN EN ISO 13934-1	>100 N	3/6 [1]
Thickness	DIN EN ISO 534	180 µm	N/A
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
Nominal protection factor [7]	EN 1073-2	>5	1/3 [3]
Seam Strength	EN ISO 13935-2	>125 N	4/6 [1]
Shelf Life [7]	N/A (598)	10 years [6]	N/A
Type 3: Resistance to Penetration by Liquids (Jet Test)	EN 17491-3	Pass	N/A
Type 4: Resistance to Penetration by Liquids (High Level Spray Test)	EN ISO 17491-4, Method B	Pass	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)	ISO 5636-5	No	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, o-Xylene	EN ISO 6530	>95 %	3/3 [1]
Repellency to Liquids, Butan-1-ol	EN ISO 6530	>90 %	2/3 [1]
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, Butan-1-ol	EN ISO 6530	<1 %	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]
Resistance to Penetration by Liquids, o-Xylene	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	log ratio >5	3/3 [2]
Resistance to Penetration by Blood and Body Fluids using Synthetic Blood	ISO 16603	20 kPa	6/6 [2]
Resistance to Penetration by Blood-borne Pathogens using Bacteriophage Phi-X174	ISO 16604 Procedure C	20 kPa	6/6 [2]
Resistance to Penetration by Contaminated Liquids	EN ISO 22610	>75 min	6/6 [2]
Resistance to Penetration by Contaminated Solid Particles	ISO 22612	log cfu <1	3/3 [2]

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

Permeation Data for Tychem® 2000 C

Hazard / Chemical Name	Physical State	CAS	BT Act	BT 0.1	BT 1.0	EN	SSPR	MDPR	Cum 480	Time 150	ISO
Acetic acid (10%)	Liquid	64-19-7	>480	>480	>480	6	<0.04	0.04	<19.2	>480	6
Acetic acid (2%)	Liquid	64-19-7	>480	>480	>480	6	<0.04	0.04	<19.2	>480	6
Acetic acid (>95%)	Liquid	64-19-7	imm	imm	imm		3	0.05 ppm			
Acetic acid ethyl ester	Liquid	141-78-6	imm	imm	imm		12.7	0.11 ppm			
Acetone	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Acetonitrile	Liquid	75-05-8	imm	imm	imm		9.4	0.13 ppm			
Acroleic acid	Liquid	79-10-7	imm	imm	imm		5.4	0.2			
Acrylic acid	Liquid	79-10-7	imm	imm	imm		5.4	0.2			
Acrylonitrile	Liquid	107-13-1	imm	imm	imm		10.6	0.005			
Amino benzene	Liquid	62-53-3	imm	imm	imm		2.1	0.14			
Ammonia (gaseous)	Vapor	7664-41-7	imm	imm	imm		3.1	0.001			
Ammonium hydroxide (28% - 30%)	Liquid	1336-21-6	imm	imm	imm		62	0.035			
Aniline	Liquid	62-53-3	imm	imm	imm		2.1	0.14			
Benzenamine	Liquid	62-53-3	imm	imm	imm		2.1	0.14			
Bromine	Liquid	7726-95-6	imm	imm	imm		>50	0.0064			
Butadiene, 1,3- (gaseous)	Vapor	106-99-0	imm	imm	imm		>12	0.001			
Butanal, n-	Liquid	123-72-8	imm	imm	imm		22	0.0063			
Butanol, 1-	Liquid	71-36-3	imm	imm	imm		1.6	0.057 ppm			
Butanol, n-	Liquid	71-36-3	imm	imm	imm		1.6	0.057 ppm			
Butyl alcohol, n-	Liquid	71-36-3	imm	imm	imm		1.6	0.057 ppm			
Butyraldehyde, n-	Liquid	123-72-8	imm	imm	imm		22	0.0063			
Carbon disulfide	Liquid	75-15-0	imm	imm	imm		4367	0.0057 ppm			
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	>10	>240	>240	5	0.002	0.001			
Caustic ammonia (28% - 30%)	Liquid	1336-21-6	imm	imm	imm		62	0.035			
Caustic soda (42%)	Liquid	1310-73-2	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Caustic soda (50% at 50 °C)	Liquid	1310-73-2	>480	>480	>480	6	<0.02	0.02	<9.6	>480	6
Caustic soda (50%)	Liquid	1310-73-2	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Chlorine (gaseous)	Vapor	7782-50-5	imm	imm	imm		>50	0.2			

BTAct (Actual) Breakthrough time at MDPR [mins] BT0.1 Normalized breakthrough time at 0.1 µg/cm²/min [mins] BT1.0 Normalized breakthrough time at 1.0 µg/cm²/min [mins] EN Classification according to EN 14325 SSPR Steady state permeation rate [µg/cm²/min] MDPR Minimum detectable permeation rate [µg/cm²/min] CUM480 Cumulative permeation mass after 480 mins [µg/cm²] Time150 Time to reach cumulative permeation mass of 150 µg/cm² [mins] ISO Classification according to ISO 16602 CAS Chemical abstracts service registry number min Minute > Larger than < Smaller than imm Immediate (< 10 min) nm Not tested sat Saturated solution N/A Not Applicable na Not attained GPR grade General purpose reagent grade * Based on lowest single value 8 Actual breakthrough time; normalized breakthrough time is not available DOT5 Degradation after 5 min DOT30 Degradation after 30 min DOT60 Degradation after 60 min DOT240 Degradation after 240 min BT1383 Normalized breakthrough time at 0.1 µg/cm²/min [mins] acc. ASTM F1383

Permeation Data for Tychem® 2000 C

Hazard / Chemical Name	Physical State	CAS	BT Act	BT 0.1	BT 1.0	EN	SSPR	MDPR	Cum 480	Time 150	ISO
Chloro ethanol, 2-	Liquid	107-07-3	imm	imm	imm		3.1	0.06 ppm			
Chloro form	Liquid	67-66-3	imm	imm	imm		348	1 ppm			
Chromic acid (CrO3) (44.9%)	Liquid	1333-82-0	>480	>480	>480	6	<0.07	0.07	<33.6	>480	6
Chromic acid (H2SO4 x CrO3) (80%)	Liquid	1333-82-0	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Cisplatin (1 mg/ml)	Liquid	15663-27-1	>240	>240	>240	5	<0.002	0.002			
Cyanoethylene	Liquid	107-13-1	imm	imm	imm		10.6	0.005			
Cyanomethane	Liquid	75-05-8	imm	imm	imm		9.4	0.13 ppm			
Cyclo phosphamide (20 mg/ml)	Liquid	50-18-0	imm	>240	>240	5	<0.01	0.002			
Dichloro methane	Liquid	75-09-2	imm	imm	imm		>50	0.001			
Diesel automotive test fuel	Liquid	mix	imm	imm	imm		3.29	0.01			
Diethyl amine	Liquid	109-89-7	imm	imm	imm		64.3	0.017 ppm			
Dimethyl fumarate (27 °C, solid)	Solid	624-49-7	177*/317	nm	291*/415	5	<0.39	0.39			
Dimethyl ketal	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Dimethyl ketone	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Doxorubicin HCl (2 mg/ml)	Liquid	25136-40-9	>240	>240	>240	5	<0.007	0.007			
Epoxy ethane (gaseous)	Vapor	75-21-8	imm	imm	imm		170	0.02			
Ethane 1,2-diol	Liquid	107-21-1	>480	>480	>480	6	<0.05	0.05	<24	>480	6
Ethane nitrile	Liquid	75-05-8	imm	imm	imm		9.4	0.13 ppm			
Ethyl acetate	Liquid	141-78-6	imm	imm	imm		12.7	0.11 ppm			
Ethyl ethanamine, N-	Liquid	109-89-7	imm	imm	imm		64.3	0.017 ppm			
Ethyl nitrile	Liquid	75-05-8	imm	imm	imm		9.4	0.13 ppm			
Ethylene carboxylic acid	Liquid	79-10-7	imm	imm	imm		5.4	0.2			
Ethylene chlorohydrin	Liquid	107-07-3	imm	imm	imm		3.1	0.06 ppm			
Ethylene glycol	Liquid	107-21-1	>480	>480	>480	6	<0.05	0.05	<24	>480	6
Ethylene oxide (gaseous)	Vapor	75-21-8	imm	imm	imm		170	0.02			
Ethylene tetrachloride	Liquid	127-18-4	imm	imm	imm		>400	0.11 ppm			
Etoposide (Toposar®, Teva) (20 mg/ml, 33.2 % (v/v) Ethanol)	Liquid	33419-42-0	>240	>240	>240	5	<0.01	<0.01			
Ferric (III) chloride (40%)	Liquid	7705-08-0	>480	>480	>480	6	<0.005	0.005	<2.5	>480	6
Fluorosilicic acid (33-35%)	Liquid	16961-83-4	>480	>480	>480	6	<0.04	0.04	<19.2	>480	6
Fluorouracil, 5- (50 mg/ml)	Liquid	51-21-8	>240	>240	>240	5	<0.002	0.002			

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Permeation Data for Tychem® 2000 C

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Formaldehyde (10%)	Liquid	50-00-0	>480	>480	>480	6	<0.1	0.1	<48	>480	6
Formaldehyde (37%)	Liquid	50-00-0	imm	imm	>480	6	0.31	0.1			
Formalin (10%)	Liquid	50-00-0	>480	>480	>480	6	<0.1	0.1	<48	>480	6
Formalin (37%)	Liquid	50-00-0	imm	imm	>480	6	0.31	0.1			
Fuel-oil no 2	Liquid	68476-30-2	imm	imm	imm		1.776	0.01			
Gemcitabine (38 mg/ml)	Liquid	95058-81-4	>10	>240	>240	5	<0.01	0.003			
Glycol alcohol	Liquid	107-21-1	>480	>480	>480	6	<0.05	0.05	<24	>480	6
Glycol chlorohydrin	Liquid	107-07-3	imm	imm	imm		3.1	0.06 ppm			
Hydrochloric acid (32%)	Liquid	7647-01-0	107*/179	240*/331	>480	6	<0.3	0.03	33.3	>480	6
Hydrochloric acid (37%)	Liquid	7647-01-0	imm/14	imm/29	38*/61	6	<2.5	0.03	105, 120 min	150	4
Hydrofluoric acid (48-51%)	Liquid	7664-39-3	imm	17	>480	6	na	0.005	134	>480	6
Hydrofluoric acid (60%)	Liquid	7664-39-3	imm	imm	81	3	na	0.005			
Hydrofluoric acid (70%)	Liquid	7664-39-3	imm	imm	15*/20	1	15.3	0.1			
Hydrogen chloride (gaseous)	Vapor	7647-01-0	imm	imm	imm						
Hydrogen peroxide (50%)	Liquid	7722-84-1	>480	>480	>480	6	<0.01	0.01	<4.8	>480	6
Hydrogen peroxide (70%)	Liquid	7722-84-1	>480	>480	>480	6	<0.02	0.02	<9.6	>480	6
Ifosfamide (50 mg/ml)	Liquid	3778-73-2	>240	>240	>240	5	<0.009	0.009			
Iodomethane	Liquid	74-88-4	imm	imm	imm		nm	0.07	4550/8 min	imm	
Isopropanol	Liquid	67-63-0	imm	imm	imm		8	0.04			
Isopropyl alcohol	Liquid	67-63-0	imm	imm	imm		8	0.04			
Ketone propane	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Limonene d-	Liquid	5989-27-5	imm	imm	imm		29.8	0.02			
Mercuric II chloride (sat)	Liquid	7487-94-7	>480	>480	>480	6	<0.01	0.01	<4.8	>480	6
Mercury	Liquid	7439-97-6	>480	>480	>480	6	<0.09	0.09	<43.2	>480	6
Methanol	Liquid	67-56-1	imm	imm	imm		2.2	0.18 ppm			
Methotrexate (25 mg/ml, 0.1 N NaOH)	Liquid	59-05-2	>240	>240	>240	5	<0.001	0.001			
Methyl 4-isopropenyl-1-cyclohexene, 1-	Liquid	5989-27-5	imm	imm	imm		29.8	0.02			
Methyl acetyl	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Methyl benzol	Liquid	108-88-3	imm	imm	imm			0.04			
Methyl cyanide	Liquid	75-05-8	imm	imm	imm		9.4	0.13 ppm			

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Permeation Data for Tychem® 2000 C

Hazard / Chemical Name	Physical State	CAS	BT Act	BT 0.1	BT 1.0	EN	SSPR	MDPR	Cum 480	Time 150	ISO
Methyl iodide	Liquid	74-88-4	imm	imm	imm		nm	0.07	4550/8 min	imm	
Methyl ketone	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Methylene chloride	Liquid	75-09-2	imm	imm	imm		>50	0.001			
Mitomycin (0.5 mg/ml)	Liquid	50-07-7	>240	>240	>240	5	<0.002	0.002			
Nicotine (9 mg/ml)	Liquid	54-11-5	>480	>480	>480	6	<0.08	0.08	<38.4	>480	6
Nitric acid (70%)	Liquid	7697-37-2	77	101	314	5	na	0.05	349	354	5
Nitro benzene	Liquid	98-95-3	imm	imm	imm		17.7	0.001			
Oleum (30% free SO3)	Liquid	8014-95-7	18	82	105	3	na	0.005			
Oxaliplatin (5 mg/ml)	Liquid	63121-00-6	>120	>240	>240	5	<0.1	0.008			
Paclitaxel (Hospira) (6 mg/ml, 49.7 % (v/v) Ethanol)	Liquid	33069-62-4	>240	>240	>240	5	<0.01	<0.01			
Perchloric acid (70%)	Liquid	7601-90-3	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Phenyl amine	Liquid	62-53-3	imm	imm	imm		2.1	0.14			
Phosphoric acid (85%)	Liquid	7664-38-2	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Potassium chromate (sat)	Liquid	7789-00-6	>480	>480	>480	6	<0.01	0.01	<4.8	>480	6
Potassium hydroxide (50%)	Liquid	1310-58-3	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Propan -2-ol	Liquid	67-63-0	imm	imm	imm		8	0.04			
Propan -2-one	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Propene acid	Liquid	79-10-7	imm	imm	imm		5.4	0.2			
Propenenitrile, 2-	Liquid	107-13-1	imm	imm	imm		10.6	0.005			
Propenoic acid nitrile	Liquid	107-13-1	imm	imm	imm		10.6	0.005			
Pyroacetic ether	Liquid	67-64-1	imm	imm	imm		<20	0.02	>908	13	1
Sodium cyanide (sat)	Liquid	143-33-9	>480	>480	>480	6	<0.07	0.07	<33.6	>480	6
Sodium fluoride (sat)	Liquid	7681-49-4	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Sodium hydroxide (42%)	Liquid	1310-73-2	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Sodium hydroxide (50% at 50 °C)	Liquid	1310-73-2	>480	>480	>480	6	<0.02	0.02	<9.6	>480	6
Sodium hydroxide (50%)	Liquid	1310-73-2	>480	>480	>480	6	<0.005	0.005	<2.4	>480	6
Sodium hypochlorite (15%)	Liquid	7681-52-9	>480	>480	>480	6	<0.05	0.05	<24	>480	6
Sulfuric acid (50%)	Liquid	7664-93-9	>480	>480	>480	6	<0.01	0.01	<4.8	>480	6
Sulfuric acid (98% at 50 °C)	Liquid	7664-93-9	>480	>480	>480	6	<0.02	0.02	<9.6	>480	6
Sulfuric acid (>95%)	Liquid	7664-93-9	>480	>480	>480	6	<0.03	0.03	<14.4	>480	6

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Permeation Data for Tychem® 2000 C

Hazard / Chemical Name	Physical State	CAS	BT Act	BT 0.1	BT 1.0	EN	SSPR	MDPR	Cum 480	Time 150	ISO
Sulfuric acid fuming (30% free SO3)	Liquid	8014-95-7	18	82	105	3	na	0.005			
Tetrachloro ethylene, 1,1,2,2-	Liquid	127-18-4	imm	imm	imm		>400	0.11 ppm			
Tetrahydrofuran	Liquid	109-99-9	imm	imm	imm			0.05			
Tetramethyl ammonium hydroxide (25%)	Liquid	75-59-2	>480	>480	>480	6	<0.37	0.037	<17.7	>480	6
Thiotepa (10 mg/ml)	Liquid	52-24-4	imm	>240	>240	5	<0.01	0.001			
Toluene	Liquid	108-88-3	imm	imm	imm			0.04			
Toluene diisocyanate, 2,4-	Liquid	584-84-9	imm	imm	imm		7	0.01			
Trichloro benzene, 1,2,4-	Liquid	120-82-1	imm	imm	imm		8.4	0.001			
Trichloro methane	Liquid	67-66-3	imm	imm	imm		348	1 ppm			
Vinyl cyanide	Liquid	107-13-1	imm	imm	imm		10.6	0.005			
Vinyl ethylene (gaseous)	Vapor	106-99-0	imm	imm	imm		>12	0.001			

BTAct (Actual) Breakthrough time at MDPR [mins] BT0.1 Normalized breakthrough time at 0.1 µg/cm²/min [mins] BT1.0 Normalized breakthrough time at 1.0 µg/cm²/min [mins] EN Classification according to EN 14325 SSPR Steady state permeation rate [µg/cm²/min] MDPR Minimum detectable permeation rate [µg/cm²/min] CUM480 Cumulative permeation mass after 480 mins [µg/cm²] Time150 Time to reach cumulative permeation mass of 150 µg/cm² [mins] ISO Classification according to ISO 16602 CAS Chemical abstracts service registry number min Minute > Larger than < Smaller than imm Immediate (< 10 min) nm Not tested sat Saturated solution N/A Not Applicable na Not attained GPR grade General purpose reagent grade * Based on lowest single value 8 Actual breakthrough time; normalized breakthrough time is not available DOT5 Degradation after 5 min DOT30 Degradation after 30 min DOT60 Degradation after 60 min DOT240 Degradation after 240 min BT1383 Normalized breakthrough time at 0.1 µg/cm²/min [mins] acc. ASTM F1383

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.

- The garment does not protect against ionizing radiation.
- 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.
- This garment and/or fabric are not flame resistant and should not be used around heat, open flame, sparks or in potentially flammable environments.