TP199T OR

DuPont™ Tychem® 6000 FR

Effective 1H 2024, Tychem® 6000 FR is discontinued. No substitutions available.

Name	Description
Full Part Number	TP199TORxx0002yy (xx=size;yy=option code)
Fabric /Materials	TYCHEM® 6000FR
Design	Coverall w/ Resp. Fit Hood, Elastic Wrists, Att. Socks w/ Outer Boot Flaps. Certified to NFPA 1990 (NFPA 1992), 2022 edition and meets HRC 2 requirements of NFPA 70E.
Seam	Taped
Color	Orange
Quantity /Box	2 per case
Sizes	SM, MD, LG, XL, 2X, 3X, 4X, 5X
Option Codes	00

FEATURES & PRODUCT DETAILS

Tychem® 6000 FR offers a single layer garment that provides triple hazard protection from liquid-chemical splash, flash fire and electric arc. Tychem® 6000 FR garments are designed to combine the trusted chemical protection of Tychem® and thermal/arc protection of Nomex® into a single layer garment. Tychem® 6000 FR garments are designed to help provide industrial workers and Hazmat responders with permeation protection against a broad range of toxic industrial chemicals and chemical warfare agents and to provide escape time from flash fires and protection from electric arc. Tychem® 6000 FR fabric provides at least eight hours breakthrough protection against 17 of the 21 standard ASTM F1001 chemicals and at least 30 minutes of protection for more than 180 chemical challenges including chemical warfare agents. The arc rating of Tychem® 6000 FR fabric is 15 cal/cm² E_{bt}. This exceeds the NFPA 70E Hazard Risk Category 2 requirement of 8 cal/cm². Typical Applications: HazMat Teams in Fire Departments, Industrial Fire Brigades, Clandestine Lab Investigation, Industrial Chemical Processing Plants, Laboratories.

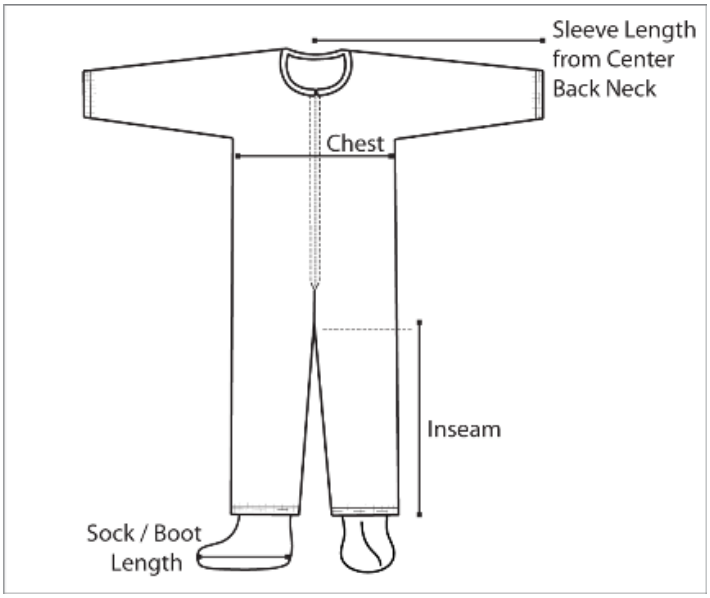
- Certified to NFPA 1990 (NFPA 1992), 2022 edition
- Taped seams provide strong chemical resistance against heavy liquid splashes. A sewn seam is covered with a strip of compatible chemical-resistant material through heat sealing.
- Attached respirator-fit hood with drawstring to pull tightly around respirator; longer zipper extends to chin for complete coverage of neck area.
- Storm flap covers zipper which can be secured by the wearer with rugged hook and loop material to prevent intrusion at zipper
- Elastic opening for tighter fit at wrist
- Integrated socks composed of garment material
- Bright orange color for high visibility
- Manufactured under specifications that do not contain natural rubber latex.
- Made in the USA, North American Free Trade Agreement (NAFTA) compliant and Trade Agreement Act (TAA) compliant
- Meets the U.S. industry requirements for blood (ASTM F1670) and viral penetration (ASTM F1671) protecting against several bloodborne pathogen exposure risks.

AVAILABLE OPTIONS

Option Code	Description	Sizes	Part Number
00	Standard	MD,LG,XL,2X,3X,4X,5X	TP199TORxx000200

SPECIFICATIONS

- The garment shall be constructed of DuPont™ Tychem® 6000 FR -- a patented fabric made with a multi-layer composite barrier film laminated to a DuPont™ Nomex® substrate.
- The garment shall be a hooded coverall design.
- The garment shall have taped seams.
- The tape used to cover the seams shall be a film composite with equal to or greater chemical resistance than the base fabric.
- The garment shall be certified to NFPA 1992 by an independent, third party laboratory.
- The garment shall have a respirator fit hood w/ drawstrings.
- The garment shall have a front zipper closure.
- The garment shall meet the Hazard Risk Category 2 requirements of NFPA 70E as determined by an independent, third party laboratory.
- The garment shall have elastic wrists.
- The garment shall have attached socks with outer boot flaps.
- The garment shall have soles made of garment material.



FINISHED DIMENSIONS

Size	Sleeve Length	Chest Width	Inseam	Fits Chest	Fits Height	Boot Length
MD	34	24	28	34 3/4 - 38 1/4	5'3" - 5'7"	14 1/2
LG	35	26	29	38 3/4 - 42 1/4	5'5" - 5'9"	14 1/2
XL	36 1/2	28	29 1/2	42 3/4 - 46 1/4	5'8" - 6'2"	14 1/2
2X	38	30	30	46 3/4 - 50 1/4	6'0" - 6'4"	14 1/2
3X	39	31 3/4	31	50 1/4 - 53 3/4	6'2" - 6'4"	14 1/2
4X	40	34	32 1/4	54 3/4 - 58 1/4	6'4" - 6'7"	14 1/2
5X	42	36 1/2	33	59 3/4 - 63 1/4	6'7" - 6'10"	15

ADDITIONAL EQUIPMENT NEEDED

- Please read, understand and follow the Tychem® User Manual.
- Please refer to the technical data package for each garment with NFPA certification for specific equipment that has been tested and certified for use with that garment.
- Wear other appropriate PPE such as, but not limited to, respiratory, eye, head, hand, and foot protection based on the hazard assessment.
- Wear separate appropriate outer footwear over the garment sock. This garment has attached socks made of garment material. These socks are not suitable to used as outer footwear. They do not have adequate durability or slip resistance to be worn as the outer foot covering. (15)

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
Thickness	ASTM D1117	34 mils
Basis Weight	ASTM D3776	8.2 oz/yd^2
Burst Strength - Ball	ASTM D751	167 lb_f
Tear Resistance - Trap Tear (MD)	ASTM D5733	25 lb_f
Tear Resistance - Trap Tear (CD)	ASTM D5733	32 lb_f
Breaking Strength - Grab (MD)	ASTM D751	155 lb_f
Breaking Strength - Grab (CD)	ASTM D751	170 lb_f
Wearing Apparel Flammability	16 CFR 1610	Class 1

CHEMICAL RESISTANCE

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
2-(2-Butoxyethoxy) ethanol	112-34-5	Liquid	>480
Acetaldehyde	75-07-0	Liquid	>480
Acetic acid (>95%)	64-19-7	Liquid	>480
Acetic acid 2 ethoxy ethyl ester	111-15-9	Liquid	>480
Acetic acid 2 methoxy ethyl ester	110-49-6	Liquid	>480
Acetic acid ethenyl ester	108-05-4	Liquid	>480
Acetic acid ethyl ester	141-78-6	Liquid	>480
Acetic acid pentyl ester	628-63-7	Liquid	>480
Acetic anhydride	108-24-7	Liquid	>480
Acetic chloride	75-36-5	Liquid	>480
Acetone	67-64-1	Liquid	>480
Acetone cyanohydrin	75-86-5	Liquid	>480
Acetonitrile	75-05-8	Liquid	>480
Acetyl chloride	75-36-5	Liquid	>480
Acroleic acid	79-10-7	Liquid	>480
Acrolein	107-02-8	Liquid	75*/101
Acrolein (10 g/m^2)	107-02-8	Liquid	>480
Acrylamide (50%)	79-06-1	Liquid	>480
Acrylic acid	79-10-7	Liquid	>480
Acrylic acid n-butyl ester	141-32-2	Liquid	>480
Acrylicamide (50%)	79-06-1	Liquid	>480
Acrylonitrile	107-13-1	Liquid	108
Acryloyl Chloride	814-68-6	Liquid	334
Adipic acid dinitrile	111-69-3	Liquid	>480
Adipic acid nitrile	111-69-3	Liquid	>480
Adiponitrile	111-69-3	Liquid	>480
Allyl alcohol	107-18-6	Liquid	>480
Allyl chloride	107-05-1	Liquid	381*/447
Amino benzene	62-53-3	Liquid	>480
Amino diphenyl, 4- (1 mg/ml in Methanol)	92-67-1	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Amino ethanol, 2-	141-43-5	Liquid	>480
Amino ethylethanolamine	111-41-1	Liquid	>480
Amino ethylethanolamine (60%)	111-41-1	Liquid	>480
Amino ethylpiperazine	140-31-8	Liquid	>480
Amino propane, 2-	75-31-0	Liquid	>480
Ammonia (-33 °C, liquid)	7664-41-7	Liquid	30
Ammonia (gaseous)	7664-41-7	Vapor	90
Ammonium bifluoride (sat)	1341-49-7	Liquid	>480
Ammonium hydrogendifluoride (sat)	1341-49-7	Liquid	>480
Ammonium hydroxide (2-3% in Householdcleaner)	1336-21-6	Liquid	>480
Ammonium hydroxide (32%)	1336-21-6	Liquid	35
Amyl acetate, n-	628-63-7	Liquid	>480
Amyl alcohol	71-41-0	Liquid	>480
Amyl ester acetic acid	628-63-7	Liquid	>480
Anilin, 4-Trifluoromethoxy-	461-82-5	Liquid	>480
Aniline	62-53-3	Liquid	>480
Anthracene (sat in Toluene)	120-12-7	Liquid	>480
Anthracin (sat in Toluene)	120-12-7	Liquid	>480
Antimony pentachloride	7647-18-9	Liquid	<15
Arsenic (III) chloride	7784-34-1	Liquid	32*/38
Arsenic trichloride	7784-34-1	Liquid	32*/38
Azolidine	123-75-1	Liquid	45*/100
Benzenamine	62-53-3	Liquid	>480
Benzene	71-43-2	Liquid	>480
Benzene carbonyl chloride	98-88-4	Liquid	>480
Benzene sulfone chloride	98-09-9	Liquid	>480
Benzene sulfonyl chloride	98-09-9	Liquid	>480
Benzo nitrile	100-47-0	Liquid	>480
Benzoyl chloride	98-88-4	Liquid	>480
Benzyl alcohol	100-51-6	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Benzyl chloride	100-44-7	Liquid	>480
Benzyl cyanide	140-29-4	Liquid	>390
Benzyl methylamine, N-	103-67-3	Liquid	>480
Bis (4-(2,3-epoxypropoxy)phenyl)propane	1675-54-3	Liquid	>480
Bis phenol A diglycidyl ether	1675-54-3	Liquid	>480
Black Liquor (mix)	mix	Liquid	>480
Boron fluoride ethyl ether	109-63-7	Liquid	>480
Boron trifluoride diethyl etherate	109-63-7	Liquid	>480
Boron trifluoride dimethyl etherate	353-42-4	Liquid	>480
Boron trifluoride etherate	109-63-7	Liquid	>480
Brom wasserstoff (gasförmig)	10035-10-6	Vapor	>480
Bromine	7726-95-6	Liquid	imm
Bromo 4-fluorobenzene, 1-	460-00-4	Liquid	>480
Bromo fluorobenzene, 4-	460-00-4	Liquid	>480
But-3-en-2-one	78-94-4	Liquid	>480
Butadiene, 1,3- (gaseous)	106-99-0	Vapor	>480
Butanol, 1-	71-36-3	Liquid	>480
Butanol, n-	71-36-3	Liquid	>480
Butanol, tert-	75-65-0	Liquid	37*/205
Butanone	78-93-3	Liquid	40*/64
Butanone oxime, 2-	96-29-7	Liquid	>480
Butoxy ethanol, 2-	111-76-2	Liquid	>480
Butyl acetate, n-	123-86-4	Liquid	>480
Butyl acrylate, n-	141-32-2	Liquid	>480
Butyl alcohol, n-	71-36-3	Liquid	>480
Butyl amine	109-73-9	Liquid	200
Butyl ether, n-	142-96-1	Liquid	>480
Butyl stannium trichloride	1118-46-3	Liquid	>480
Calomel (sat)	10112-91-1	Liquid	>480
Carbon disulfide	75-15-0	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Carbon tetrachloride	56-23-5	Liquid	imm*/11
Caustic ammonia (2-3% in Householdcleaner)	1336-21-6	Liquid	>480
Caustic ammonia (32%)	1336-21-6	Liquid	35
Caustic soda (50%)	1310-73-2	Liquid	>480
Cellosolve acetate	110-80-5	Liquid	>480
Chlor allylene	107-05-1	Liquid	381*/447
Chlor trinitromethan	76-06-2	Liquid	>480
Chlorine (gaseous)	7782-50-5	Vapor	>480
Chloro 1,3-butadiene, 2- (50% in Butanol)	126-99-8	Liquid	>480
Chloro 1-methylbenzene, 2-	95-49-8	Liquid	>480
Chloro 2,3-epoxy propane, 1-	106-89-8	Liquid	395
Chloro 2-nitrobenzene, 1- (35-40 °C, molten)	88-73-3	Liquid	>480
Chloro acetic acid (80%)	79-11-8	Liquid	>480
Chloro acetone (95%)	78-95-5	Liquid	>480
Chloro acrylonitrile, 2-	920-37-6	Liquid	>480
Chloro aniline, p- (70 °C, molten)	106-47-8	Liquid	imm
Chloro benzenamine, 4- (70 °C, molten)	106-47-8	Liquid	imm
Chloro benzene	108-90-7	Liquid	>480
Chloro ethanol, 2-	107-07-3	Liquid	>480
Chloro ethene	75-01-4	Vapor	>480
Chloro methyl methyl ether	107-30-2	Liquid	imm*/37
Chloro picrin	76-06-2	Liquid	>480
Chloro prene, 3-	107-05-1	Liquid	381*/447
Chloro propan-2-one, 1- (95%)	78-95-5	Liquid	>480
Chloro toluene, alpha-	100-44-7	Liquid	>480
Chloro toluene, o-	95-49-8	Liquid	>480
Chloroform	67-66-3	Liquid	imm
Chlorsulfonic acid	7790-94-5	Liquid	17
Citric acid (sat)	77-92-9	Liquid	>480
Creosote	8001-58-9	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Cresol o-	95-48-7	Liquid	179
Cumene	98-82-8	Liquid	>480
Cyanobenzene	100-47-0	Liquid	>480
Cyanoethylene	107-13-1	Liquid	108
Cyanomethane	75-05-8	Liquid	>480
Cyanopropan-2-ol, 2-	75-86-5	Liquid	>480
Cyclo hexane	110-82-7	Liquid	>480
Cyclo hexanone	108-94-1	Liquid	>480
Dahlgren Decon solution	mix	Liquid	>480
Diaminoethane, 1,2-	107-15-3	Liquid	>480
Dibromoethane, 1,2-	106-93-4	Liquid	144*/288
Dibutyl 1,2-benzenedicarboxylate	84-74-2	Liquid	nm
Dibutyl phthalate	84-74-2	Liquid	nm
Dibutyl sebacate	109-43-3	Liquid	nm
Dichlorbenzen, 1,3-	541-73-1	Liquid	>480
Dichlorethane, 1.2.-	107-06-2	Liquid	93
Dichloro -2-propanone, 1,3- (45 °C, molten)	534-07-6	Liquid	>480
Dichloro acetone, 1,3- (45 °C, molten)	534-07-6	Liquid	>480
Dichloro acetyl chloride	79-36-7	Liquid	160
Dichloro ethyl ether	111-44-4	Liquid	>480
Dichloro ethylene, 1,1-	75-35-4	Liquid	>480
Dichloro methane	75-09-2	Liquid	imm
Dichloro propene, 2,3-	78-88-6	Liquid	imm*/25
Dicyanobutane, 1,4-	111-69-3	Liquid	>480
Diesel fuel	68334-30-5	Liquid	>480
Diethyl amine	109-89-7	Liquid	>480
Diethyl benzene (95%)	25340-17-4	Liquid	>480
Diethyl ethanamine, N,N-	121-44-8	Liquid	>480
Diethyl ether	60-29-7	Liquid	>480
Diethyl sulfate	64-67-5	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Diethylene glycol monobutyl ether	112-34-5	Liquid	>480
Diethylene triamine	111-40-0	Liquid	>480
Diisopropylethylamine (DIPEA)	7087-68-5	Liquid	>480
Dimethyl acetamide, N,N-	127-19-5	Liquid	>480
Dimethyl amine	124-40-3	Vapor	>480
Dimethyl aniline, N,N-	121-69-7	Liquid	>480
Dimethyl dichlorosilane	75-78-5	Liquid	>480
Dimethyl formamide, N,N-	68-12-2	Liquid	>480
Dimethyl ketal	67-64-1	Liquid	>480
Dimethyl ketone	67-64-1	Liquid	>480
Dimethyl mercury in decane (100 ppm in Decane)	593-74-8	Liquid	>480
Dimethyl nitrosamine	62-75-9	Liquid	>480
Dimethyl phenylamine, N,N-	121-69-7	Liquid	>480
Dimethyl sulfate	77-78-1	Liquid	>480
Dimethyl sulfide	75-18-3	Liquid	271
Dimethyl sulfoxide	67-68-5	Liquid	>480
Dioxane, 1,4-	123-91-1	Liquid	>480
Diphenyl methane diisocyanate, 4,4'- (50 °C, molten)	101-68-8	Liquid	>480
Dytek® A	15520-10-2	Liquid	>480
Epichlorohydrin	106-89-8	Liquid	395
Epoxy ethane (gaseous)	75-21-8	Vapor	>480
Epoxy propane, 1,2-	75-56-9	Liquid	13*/20
Ethane 1,2-diol	107-21-1	Liquid	>480
Ethane dioic acid (sat)	144-62-7	Liquid	>480
Ethane nitrile	75-05-8	Liquid	>480
Ethane thiol	75-08-1	Liquid	>480
Ethane trichloride	79-00-5	Liquid	164*/232
Ethanol	64-17-5	Liquid	>480
Ethanol amine	141-43-5	Liquid	>480
Ethanoyl chloride	75-36-5	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Ethoxy ethanol, 2-	110-80-5	Liquid	>480
Ethoxy ethylacetat	111-15-9	Liquid	>480
Ethyl Cellosolve®	110-80-5	Liquid	>480
Ethyl acetate	141-78-6	Liquid	>480
Ethyl alcohol	64-17-5	Liquid	>480
Ethyl benzene	100-41-4	Liquid	>480
Ethyl ethanamine, N-	109-89-7	Liquid	>480
Ethyl ether	60-29-7	Liquid	>480
Ethyl glycol acetate	111-15-9	Liquid	>480
Ethyl mercaptan	75-08-1	Liquid	>480
Ethyl nitrile	75-05-8	Liquid	>480
Ethylene carboxylic acid	79-10-7	Liquid	>480
Ethylene chlorohydrin	107-07-3	Liquid	>480
Ethylene diamine	107-15-3	Liquid	>480
Ethylene dibromide	106-93-4	Liquid	144*/288
Ethylene dichloride	107-06-2	Liquid	93
Ethylene glycol	107-21-1	Liquid	>480
Ethylene glycol mono ethyl ether acetate	111-15-9	Liquid	>480
Ethylene glycol monobutyl ether	111-76-2	Liquid	>480
Ethylene glycol monoethyl ether	110-80-5	Liquid	>480
Ethylene glycol monomethyl ether	109-86-4	Liquid	>480
Ethylene glycol monomethyl ether acetate	110-49-6	Liquid	>480
Ethylene oxide (gaseous)	75-21-8	Vapor	>480
Ethylene tetrachloride	127-18-4	Liquid	>480
Ethylene trichloride	79-01-6	Liquid	>480
Fluorobenzene	462-06-6	Liquid	>480
Fluorosilicic acid (33-35%)	16961-83-4	Liquid	>480
Formaldehyde (37%)	50-00-0	Liquid	>480
Formalin (37% (10-15% Methanol))	50-00-0	Liquid	>480
Formalin (37%)	50-00-0	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Formic acid (50%)	64-18-6	Liquid	>480
Formic acid (>95%)	64-18-6	Liquid	260
Furaldehyde, 2-	98-01-1	Liquid	>480
Furfural	98-01-1	Liquid	>480
Gasoline, leaded	mix	Liquid	imm*/21
Gasoline, unleaded	86290-81-5	Liquid	>480
Glutaral (50%)	111-30-8	Liquid	170
Glutaraldehyde (50%)	111-30-8	Liquid	170
Glycol alcohol	107-21-1	Liquid	>480
Glycol chlorohydrin	107-07-3	Liquid	>480
Green Liquor (mix)	mix	Liquid	>480
Hexamethylene diamine (45 °C, molten)	124-09-4	Liquid	>480
Hexamethylene diisocyanate	822-06-0	Liquid	>480
Hexane, n-	110-54-3	Liquid	>480
Hexanone	108-94-1	Liquid	>480
Hexone	108-10-1	Liquid	>480
Hydrazine	302-01-2	Liquid	283
Hydriodic acid (55-57%)	10034-85-2	Liquid	>480
Hydrochloric acid (37%)	7647-01-0	Liquid	>480
Hydrofluoric acid (48-51%)	7664-39-3	Liquid	15
Hydrogen bromide (gaseous)	10035-10-6	Vapor	>480
Hydrogen chloride (gaseous)	7647-01-0	Vapor	>480
Hydrogen fluoride (20-27 °C, gaseous)	7664-39-3	Vapor	imm
Hydrogen peroxide (50%)	7722-84-1	Liquid	>480
Hydrogen peroxide (70%)	7722-84-1	Liquid	>480
Hydrogen sulfide	7783-06-4	Vapor	>480
Hydroxy 1,2,3-propanetricarboxylic acid, 2- (sat)	77-92-9	Liquid	>480
Hydroxy 1-ethanethiol, 2-	60-24-2	Liquid	>480
Hydroxy 2-methylpropionitrile, 2-	75-86-5	Liquid	>480
Hydroxy isobutyronitrile	75-86-5	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Hydroxy toluene	100-51-6	Liquid	>480
Hydroxy toluene, o-	95-48-7	Liquid	179
Hypophosphorus acid (50%)	6303-21-5	Liquid	>480
Iodomethane	74-88-4	Liquid	296
Isobutyl methyl ketone	108-10-1	Liquid	>480
Isophthaloyldichloride (45 °C, molten)	99-63-8	Liquid	>480
Isopropanol	67-63-0	Liquid	>480
Isopropanol (70%)	67-63-0	Liquid	>480
Isopropyl alcohol	67-63-0	Liquid	>480
Isopropyl alcohol (70%)	67-63-0	Liquid	>480
Isopropyl amine	75-31-0	Liquid	>480
Isopropyl benzene	98-82-8	Liquid	>480
Isopropylidenediphenol diglycidyl ether, 4,4'-	1675-54-3	Liquid	>480
Kerosene	8008-20-6	Liquid	>480
Ketone propane	67-64-1	Liquid	>480
Lewisite (L), FINABEL 0.7.C	541-25-3	Liquid	>155[8]
Lewisite (L), MIL-STD-282 (100 g/m^2)	541-25-3	Liquid	360[8]
Limonene d-	5989-27-5	Liquid	>480
MEK	78-93-3	Liquid	40*/64
Mercapto acetic acid	68-11-1	Liquid	>480
Mercapto ethanol	60-24-2	Liquid	>480
Mercuric I chloride (sat)	10112-91-1	Liquid	>480
Mercury	7439-97-6	Liquid	>480
Methacrylic acid	79-41-4	Liquid	>480
Methanesulfonyl chloride	124-63-0	Liquid	>480
Methanesulphonic acid	75-75-2	Liquid	>480
Methanethiol	74-93-1	Vapor	>480
Methanol	67-56-1	Liquid	117
Methoxy 2-methylpropane, 2-	1634-04-4	Liquid	>480
Methoxy chloromethane	107-30-2	Liquid	imm*/37

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Methoxy ethanol, 2	109-86-4	Liquid	>480
Methoxy ethylacetate, 2-	110-49-6	Liquid	>480
Methyl 1,5-pentantedinitrile, 2-	4553-62-2	Liquid	>480
Methyl 2-methyl-2-propenoate	80-62-6	Liquid	imm*/53
Methyl 2-pyrrolidone, N-	872-50-4	Liquid	>480
Methyl 4-isopropenyl-1-cyclohexene, 1-	5989-27-5	Liquid	>480
Methyl N-nitrosomethanamine, N-	62-75-9	Liquid	>480
Methyl acetyl	67-64-1	Liquid	>480
Methyl acrylate	96-33-3	Liquid	>480
Methyl amine (gaseous)	74-89-5	Vapor	>480
Methyl aniline, o-	95-53-4	Liquid	>480
Methyl benzol	108-88-3	Liquid	>480
Methyl benzylamine, N-	103-67-3	Liquid	>480
Methyl chloride (gaseous)	74-87-3	Vapor	>480
Methyl chloro formate	79-22-1	Liquid	204*/308
Methyl chloroform	71-55-6	Liquid	>480
Methyl cyanide	75-05-8	Liquid	>480
Methyl ethyl ketone	78-93-3	Liquid	40*/64
Methyl ethyl ketoxime	96-29-7	Liquid	>480
Methyl formamide, N-	123-39-7	Liquid	>480
Methyl hydrazine	60-34-4	Liquid	183*/283
Methyl iodide	74-88-4	Liquid	296
Methyl isocyanate	624-83-9	Liquid	imm
Methyl ketone	67-64-1	Liquid	>480
Methyl mercaptan	74-93-1	Vapor	>480
Methyl methacrylate	80-62-6	Liquid	imm*/53
Methyl pentan-2-one, 4-	108-10-1	Liquid	>480
Methyl propan-2-ol, 2-	75-65-0	Liquid	37*/205
Methyl propenoic acid, 2-	79-41-4	Liquid	>480
Methyl pyridine, 2-	109-06-8	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Methyl pyridine, 3-	108-99-6	Liquid	>480
Methyl tert-butyl ether	1634-04-4	Liquid	>480
Methyl trichloromethane	71-55-6	Liquid	>480
Methyl trichlorosilane	75-79-6	Liquid	>480
Methyl vinyl ketone	78-94-4	Liquid	>480
Methylene bromide	74-95-3	Liquid	imm
Methylene chloride	75-09-2	Liquid	imm
Methylene diphenyl diisocyanate, 4,4'- (50 °C, molten)	101-68-8	Liquid	>480
N-Methylmorpholine (NMM)	109-02-4	Liquid	>480
Naphthalene	91-20-3	Solid	>480
Naphthalene (25% in Diethylene glycol dimethylether)	91-20-3	Liquid	>480
Neoprene (50% in Butanol)	126-99-8	Liquid	>480
Nicotine	54-11-5	Liquid	>480
Nitric acid (50%)	7697-37-2	Liquid	>480
Nitric acid (70%)	7697-37-2	Liquid	105*/140
Nitric acid, red fuming (90%)	52583-42-3	Liquid	imm
Nitro benzene	98-95-3	Liquid	>480
Nitro chlormethan	76-06-2	Liquid	>480
Nitro methane	75-52-5	Liquid	233
Nitro propane, 2-	79-46-9	Liquid	>480
Nitrogen dioxide	10102-44-0	Vapor	<15
Oleum (20% free SO3)	8014-95-7	Liquid	15*/59
Oleum (40% free SO3)	8014-95-7	Liquid	imm*/12
Oxalic acid (sat)	144-62-7	Liquid	>480
PCB in transformer oil (mix)	mix	Liquid	>480
Pentachloroantimony	7647-18-9	Liquid	<15
Pentanedial, 1,5- (50%)	111-30-8	Liquid	170
Pentanol, 1-	71-41-0	Liquid	>480
Pentene nitrile, 2-	13284-42-9	Liquid	>480
Pentyl acetate	628-63-7	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Phenethylene	100-42-5	Liquid	>480
Phenol (45 °C, molten)	108-95-2	Liquid	25
Phenol (85%)	108-95-2	Liquid	>480
Phenyl acetonitrile	140-29-4	Liquid	>390
Phenyl amine	62-53-3	Liquid	>480
Phenyl chloride	108-90-7	Liquid	>480
Phenyl cyanide	100-47-0	Liquid	>480
Phenyl ethane	100-41-4	Liquid	>480
Phenyl propane, 2-	98-82-8	Liquid	>480
Phenyl trichlorosilane	98-13-5	Liquid	>480
Phosgene	75-44-5	Vapor	>480
Phosphine	7803-51-2	Vapor	imm
Phosphinic acid (50%)	6303-21-5	Liquid	>480
Phosphoric acid (85%)	7664-38-2	Liquid	>480
Phosphorus oxychloride	10025-87-3	Liquid	>480
Phosphorus trichloride	7719-12-2	Liquid	>480
Picoline, 2-	109-06-8	Liquid	>480
Picoline, 3-	108-99-6	Liquid	>480
Pimelic ketone	108-94-1	Liquid	>480
Polyethylene glycol dimethyl ether	24991-55-7	Liquid	>480
Polymethylene polyphenyle isocyanate (p-MDI)	9016-87-9	Liquid	>480
Potassium chromate (sat)	7789-00-6	Liquid	>480
Potassium hydroxide (45%)	1310-58-3	Liquid	>480
Potassium hydroxide (50%)	1310-58-3	Liquid	>480
Prop-2-en-1-al	107-02-8	Liquid	75*/101
Prop-2-en-1-al (10 g/m^2)	107-02-8	Liquid	>480
Prop-2-yn-1-ol	107-19-7	Liquid	123
Propan -1-ol	71-23-8	Liquid	>480
Propan -2-ol	67-63-0	Liquid	>480
Propan -2-ol (70%)	67-63-0	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Propan -2-one	67-64-1	Liquid	>480
Propanol, 1-	71-23-8	Liquid	>480
Propanol, n-	71-23-8	Liquid	>480
Propargyl alcohol	107-19-7	Liquid	123
Propen 1-ol, 2-	107-18-6	Liquid	>480
Propenamide (50%)	79-06-1	Liquid	>480
Propene acid	79-10-7	Liquid	>480
Propenenitrile, 2-	107-13-1	Liquid	108
Propenoic acid butyl ester, 2-	141-32-2	Liquid	>480
Propenoic acid nitrile	107-13-1	Liquid	108
Propyl alcohol	71-23-8	Liquid	>480
Propyl amine, n-	107-10-8	Liquid	16*/21
Propylene oxide, 1,2-	75-56-9	Liquid	13*/20
Pyridene, 2-fluoro-6-(trifluoromethyl)	94239-04-0	Liquid	>480
Pyridine	110-86-1	Liquid	>480
Pyroacetic ether	67-64-1	Liquid	>480
Pyrrolidine	123-75-1	Liquid	45*/100
Sarin (GB), FINABEL 0.7.C	107-44-8	Liquid	>1400[8]
Sarin (GB), MIL-STD-282 (100 g/m^2)	107-44-8	Liquid	>480[8]
Silane	7803-62-5	Vapor	>480
Silicon tetrachloride	10026-04-7	Liquid	>480
Sodium cyanide (45%)	143-33-9	Liquid	>480
Sodium cyanide (sat)	143-33-9	Liquid	>480
Sodium hydroxide (50%)	1310-73-2	Liquid	>480
Sodium hypochlorite (15%)	7681-52-9	Liquid	>480
Soman (GD), FINABEL 0.7.C	96-64-0	Liquid	>1400[8]
Soman (GD), MIL-STD-282 (100 g/m^2)	96-64-0	Liquid	>480[8]
Spiritus	64-17-5	Liquid	>480
Styrene	100-42-5	Liquid	>480
Sulfur Mustard (HD), FINABEL 0.7.C	505-60-2	Liquid	>1400[8]

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Sulfur Mustard (HD), MIL-STD-282 (100 g/m^2)	505-60-2	Liquid	>480[8]
Sulfur dioxide	7446-09-5	Vapor	26*/37
Sulfuric acid (30%)	7664-93-9	Liquid	>480
Sulfuric acid (50%)	7664-93-9	Liquid	>480
Sulfuric acid (70%)	7664-93-9	Liquid	>480
Sulfuric acid (>95%)	7664-93-9	Liquid	50
Sulfuric acid diethyl ester	64-67-5	Liquid	>480
Sulfuric acid dimethyl ester	77-78-1	Liquid	>480
Sulfuric acid fuming (20% free SO3)	8014-95-7	Liquid	15*/59
Sulfuric acid fuming (40% free SO3)	8014-95-7	Liquid	imm*/12
Sulfuryl chloride	7791-25-5	Liquid	>480
Tabun (GA), FINABEL 0.7.C	77-81-6	Liquid	>1400[8]
Tabun (GA), MIL-STD-282 (100 g/m^2)	77-81-6	Liquid	>480[8]
Tert-Butyl Hydroperoxide	75-91-2	Liquid	>480
Tetrachloro bisphenol-A, 2,2',6,6'-	79-95-8	Solid	>480
Tetrachloro ethane, 1,1,2,2,-	79-34-5	Liquid	>480
Tetrachloro ethylene, 1,1,2,2-	127-18-4	Liquid	>480
Tetrachloro methane	56-23-5	Liquid	imm*/11
Tetraethylene pentamine	112-57-2	Liquid	>480
Tetrahydrofuran	109-99-9	Liquid	>480
Tetramethyl ammonium hydroxide (25%)	75-59-2	Liquid	>480
Tetramethylethylene diamine (TMEDA)	110-18-9	Liquid	>480
Thioalkohol	75-08-1	Liquid	>480
Thioglycolic acid	68-11-1	Liquid	>480
Thionyl chloride	7719-09-7	Liquid	21
Tin chloride, mono-n-butyl	1118-46-3	Liquid	>480
Tin chloride, tri-n-butyl	1461-22-9	Liquid	nm
Titan(IV) chloride	7550-45-0	Liquid	>480
Titanium tetrachloride	7550-45-0	Liquid	>480
Toluene	108-88-3	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
Toluene diisocyanate, 2,4-	584-84-9	Liquid	>480
Toluene diisocyanate, 2,4- (80%)	584-84-9	Liquid	>480
Toluidine, o-	95-53-4	Liquid	>480
Tributyl amine (95%)	102-82-9	Liquid	>480
Trichloro acetic acid (sat)	76-03-9	Liquid	>480
Trichloro acetone, 1,1,3- (87.7%)	921-03-9	Liquid	467*/476
Trichloro benzene, 1,2,4-	120-82-1	Liquid	>480
Trichloro ethane, 1,1,1-	71-55-6	Liquid	>480
Trichloro ethane, 1,1,2-	79-00-5	Liquid	164*/232
Trichloro ethanol, 2,2,2-	115-20-8	Liquid	>480
Trichloro ethylene	79-01-6	Liquid	>480
Trichloro methane	67-66-3	Liquid	imm
Trichloro phenylsilane	98-13-5	Liquid	>480
Trichloro silane	10025-78-2	Liquid	>480
Triethyl amine	121-44-8	Liquid	>480
Triethylentetramine (60%)	112-24-3	Liquid	>480
Trifluoro acetic acid	76-05-1	Liquid	>480
Trifluoro methansulfonic acid	1493-13-6	Liquid	>480
Trimethyl chinon (30 °C, molten)	935-92-2	Liquid	nm
VX Nerve Agent, FINABEL 0.7.C	50782-69-9	Liquid	>1400[8]
VX Nerve Agent, MIL-STD-282 (100 g/m^2)	50782-69-9	Liquid	>480[8]
Vanadium tetrachloride	7632-51-1	Liquid	>480
Vinyl acetate	108-05-4	Liquid	>480
Vinyl benzol	100-42-5	Liquid	>480
Vinyl carbinol	107-18-6	Liquid	>480
Vinyl chloride	75-01-4	Vapor	>480
Vinyl cyanide	107-13-1	Liquid	108
Vinyl ethylene (gaseous)	106-99-0	Vapor	>480
Vinylidene chloride	75-35-4	Liquid	>480
White Liquor	mix	Liquid	>480

Hazard / Chemical Name	Cas Number	Phase	Normalized Break Through
White spirit	mix	Liquid	>480
Xylene, mixed isomers	1330-20-7	Liquid	>480

BT0.1 Normalized breakthrough time at 0.1 µg/cm²/min [mins] 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

SPECIAL WARNINGS

Important Note:

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