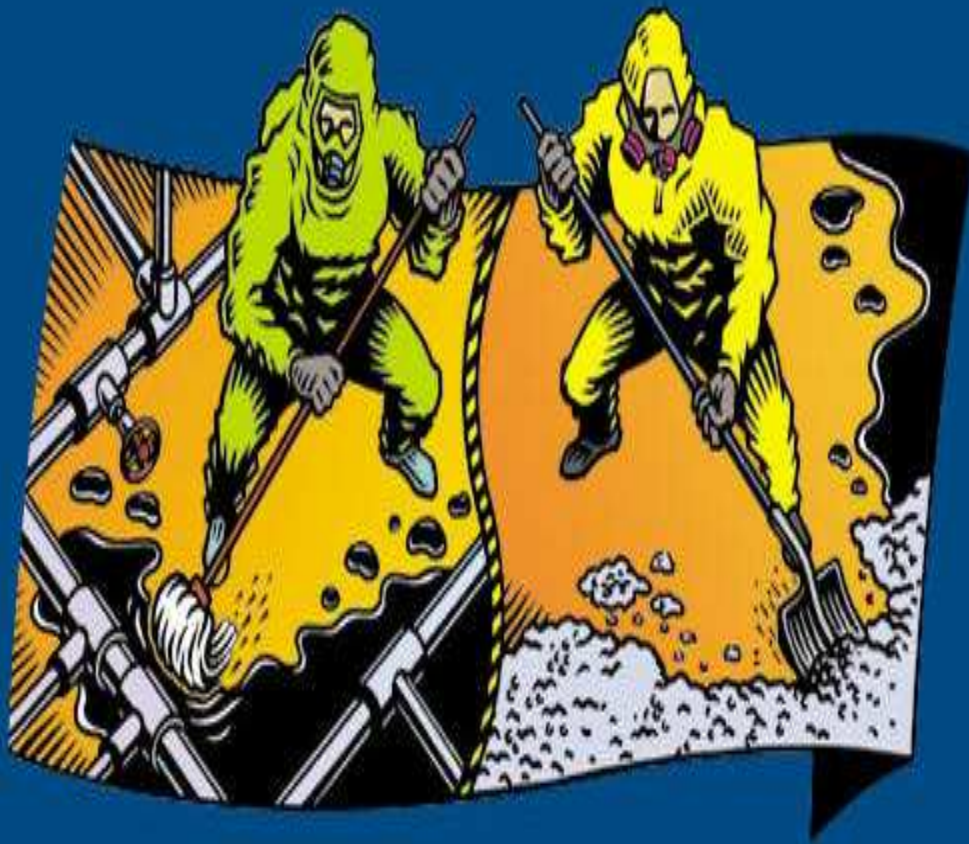


# Tychem®

UNMATCHED DEFENSE AGAINST HAZARDOUS CHEMICALS

## 2003 Permeation Guide for Selected Tychem Fabrics

Effective January 2003



 **Lakeland**

  
**Tychem**

## Permeation Guide for Selected DuPont™ Tychem® Fabrics

### Fabrics Included:

- Tychem® QC
- Tychem® SL
- Tychem® F
- Tychem® 7500
- Tychem® BR
- Tychem® TK

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### How to Use these Permeation Data Tables

1. Locate the desired chemical in the **Chemical Index**.

The **Chemical Index** is presented in two ways:

- **Alphabetical** Index
- Index by **Chemical Abstract System (CAS) Number**

For each chemical, the following information is listed.

- Chemical name
- Chemical subclass number(s)
- CAS number
- Chemical name used in data table if name listed is a synonym

2. Locate the subclass(es) of the chemical in the permeation data tables.
3. Find the chemical name under its sub-class(es) and read across to find the permeation test results for the chemical.
4. For chemicals not tested, the chemical subclass number is provided so users may view test results for tested chemicals in that subclass. Prediction of chemical resistance of a material from data on other chemicals has not been successful. However, when data is unavailable, information on related chemicals within a sub-class may at least rank alternative chemical protective materials as to their probable chemical resistance.

### 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 the garment manufacturer for specific data. If fabric becomes torn, abraded or punctured, end user should discontinue use of garment to avoid potential exposure to chemical.

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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.

### Warning:

- Tychem® fabrics should not be used around heat, flames, sparks, or potentially explosive environments.
- Tychem® fabrics should have slip resistant or antislip materials on the outer surface of boots, shoe covers or other garment surfaces where slipping could occur.

DuPont™ is a trademark of E. I. du Pont de Nemours and Company.

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### Independent Testing

All permeation tests are conducted for DuPont by independent accredited testing laboratories. Except for the chemical warfare agents, all results are based on ASTM F739, "Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases under Continuous Contact. Chemical warfare agents are tested using MIL-STD282.

All tests were conducted at room temperature unless otherwise noted. Copies of individual reports are available by calling 1-800-645-9291.

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### What is Permeation?

Permeation is a difficult concept to grasp because it can't be seen and does not require a hole in the barrier. It occurs when a chemical is absorbed until it saturates the barrier and then desorbs, or diffuses, from the opposite surface.

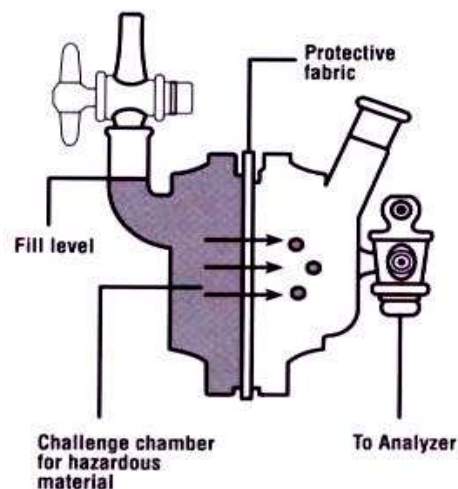
You may have experienced permeation firsthand if you stepped in gasoline at a filling station. If you noticed the odor of gasoline in your car as you drove away you experienced two of the three steps involved in permeation - absorption and desorption. The soles of your shoes absorbed some gasoline, then you smelled it as it desorbed from the bottom surface of your shoe. If you had stood in the gasoline long enough, the sole of your shoe would have become saturated with gasoline and the vapors would have started to desorb inside your shoe.

When it comes to hazardous liquids, vapors or gases, permeation testing is required.

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### How Permeation Tests Are Conducted

Permeation tests are conducted following the ASTM F739 "Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids and Gases." A swatch of test fabric is inserted into a special test cell, with the outside surface of the fabric toward the challenge chamber, thus exposing it to a challenge chemical. The inside surface of the fabric is toward the sampling chamber. If the chemical moves through the protective clothing fabric and is detected on the inside surface of the fabric, it is said to have permeated the fabric.



**ASTM F739 Test Cell**

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## Definitions of Terms for ASTM F739

### **Permeation rate:**

The rate at which the challenge chemical permeates the fabric. In these tables, the permeation rate reflects the steady state rate when chemical contact is continuous and all forces affecting permeation have reached equilibrium.

### **Minimum Detectable Permeation Rate (MDPR):**

The minimum permeation rate that can be detected during a permeation test. MDPR is a function of the sensitivity of the analytical measurement technique, the volume into which the permeant is collected, and sampling time. Minimum detectable permeation rates as low as 0.001  $\mu\text{g}/\text{cm}^2/\text{minute}$  are possible for many chemicals.

### **Actual breakthrough time:**

The time between initial contact of the chemical with the outside surface of the fabric and the detection of permeation.

An actual breakthrough time of >480 does not mean there was no breakthrough. It means that permeation was not detected. Permeation may have occurred, but at a rate less than the minimum detectable permeation rate (MDPR).

### **Standardized breakthrough time:**

The time at which permeation rate reaches 0.1  $\mu\text{g}/\text{cm}^2/\text{min}$ .

Standardized breakthrough times are used in this table. They are used for fabric comparison because they eliminate test sensitivity issues.

A standardized breakthrough time of >480 minutes does not mean there was not permeation; it means that the rate of permeation did not exceed 0.1  $\mu\text{g}/\text{cm}^2/\text{min}$  during the 8-hour test. When the permeation exceeds 0.1  $\mu\text{g}/\text{cm}^2/\text{min}$  in the first 10 minutes of testing, DuPont chooses to report the breakthrough time as immediate.

Results of permeation tests are variable. The results reported here are averages of three or more separate tests. Users should not be misled in assuming these breakthrough times and permeation rates are exact. This variability should be taken into account in material selection. (See ASTM F739.)

*PLEASE NOTE*: in Europe, standardized breakthrough times are based on a permeation rate of 1.0  $\mu\text{g}/\text{cm}^2/\text{min}$ . This is 10 times less sensitive than the basis used in North America

**CAS:** Chemical Abstract System

**N/A:** Not applicable

# Permeation Guide for Selected DuPont™ Tychem® Fabrics

## CHEMICAL CLASS & SUBCLASS LISTING\*

### 100 Carboxylic acids

- 102 Aliphatic and Alicyclic, Unsubstituted
- 103 Aliphatic and Alicyclic, Substituted
- 104 Aliphatic and Alicyclic, Polybasic

### 110 Acid Halides, Carboxylic

- 111 Aliphatic and Alicyclic
- 112 Aromatic
- 113 Chloroformates

### 120 Aldehydes

- 121 Aliphatic and Alicyclic
- 122 Aromatic

### 130 Amides

- 132 Aliphatic and Alicyclic
- 135 Acrylamides

### 140 Amines

- 141 Aliphatic and Alicyclic, Primary
- 142 Aliphatic and Alicyclic, Secondary
- 143 Aliphatic and Alicyclic, Tertiary
- 145 Aromatic, Primary
- 146 Aromatic, Secondary and Tertiary
- 148 Aliphatic and Alicyclic Polyamines
- 149 Aromatic Polyamines

### 160 Anhydrides

- 161 Aliphatic and Alicyclic

### 210 Isocyanates

- 211 Aliphatic and Alicyclic
- 212 Aromatic

### 220 Carboxylic Esters

- 222 Acetates
- 223 Acrylates and Methacrylates
- 224 Aliphatic, Others
- 225 Lactones
- 226 Benzoates and Phthalates

### 230 Non-Carboxylic Esters

- 233 Carbamates and Others

### 240 Ethers

- 241 Aliphatic and Alicyclic
- 245 Glycol Ethers

### 260 Halogen Compounds

- 261 Aliphatic and Alicyclic
- 263 Aromatic
- 264 Vinylic
- 265 Alylic
- 266 Benzylic

### 270 Heterocyclic Compounds

- 271 Nitrogen, Pyridines
- 274 Nitrogen, Others
- 275 Oxygen, Epoxides
- 277 Oxygen, Furans
- 278 Oxygen, Others

### 280 Hydrazines

### 290 Hydrocarbons

- 291 Aliphatic and Alicyclic, Saturated
- 292 Aromatic
- 293 Aromatic Polynuclear
- 294 Aliphatic and Alicyclic, Unsaturated
- 296 Polyenes

### 300 Peroxides

### 310 Hydroxylic Compounds

- 311 Aliphatic and Alicyclic, Primary
- 312 Aliphatic and Alicyclic, Secondary
- 313 Aliphatic and Alicyclic, Tertiary
- 314 Aliphatic and Alicyclic, Polyols
- 315 Aliphatic and Alicyclic, Substituted
- 316 Aromatic, Phenols
- 318 Aromatic, Others

### 330 Elements

### 340 Inorganic Salts (Solutions)

### 345 Inorganic Cyano Compounds

### 350 Inorganic Gases and Vapors

### 360 Inorganic Acid Halides

### 365 Inorganic Acid Oxides

### 370 Inorganic Acids

### 380 Inorganic Bases

### 390 Ketones

- 391 Aliphatic and Alicyclic

### 430 Nitriles

- 431 Aliphatic and Alicyclic
- 432 Aromatic

### 440 Nitro Compounds

- 441 Unsubstituted
- 442 Substituted

### 450 Nitroso Compounds

### 460 Organo-Phosphorus Compounds

- 462 Derivatives of Phosphorus-based acids

### 470 Organo-Metallic Compounds

### 480 Organo-Silicon Compounds

### 500 Sulfur Compounds

- 501 Thiols
- 502 Sulfides and Disulfides
- 503 Sulfones and Sulfoxides
- 504 Sulfonic Acids
- 505 Sulfonyl Chlorides
- 507 Sulfonates, Sulfates, and Sulfites
- 509 Other

### 550 Organic Salts (Solutions)

### 590 Miscellaneous (Not classified)

### 595 Chemical Warfare Agents

\*Partial list based on ASTM F1186. A complete copy of ASTM F1186 may be purchased from ASTM.

**CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms**

The Permeation Data Table shows test results for certain tested (**T**) chemicals in associated subclasses as defined in ASTM F1186. For chemicals not tested (**nt**), the chemical subclass number is provided so users may view test results for tested chemicals in that subclass. Prediction of chemical resistance of a material from data on other chemicals has not been successful. However, when data is unavailable, information on related chemicals within a sub-class may at least rank alternative chemical protective materials as to their probable chemical resistance.

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Acetaldehyde		75-07-0	120	121	T
Acetamide		60-35-5	130	132	nt
Acetic acid		64-19-7	100	102	T
Acetic anhydride		108-24-7	160	161	T
Acetone		67-64-1	390	391	T
Acetone cyanohydrin		75-86-5	310 / 430	313 / 431	T
Acetonitrile		75-05-8	430	431	T
Acetophenone		98-86-2	390	392	nt
Acetoxyethane	Ethyl acetate	141-78-6	220	222	T
Acetyl bromide		506-96-7	110	111	T
Acetyl chloride		75-36-5	110	111	T
Acetylene dichloride	trans-1,2-Dichloroethylene	156-60-5	260	261	T
Acridine		260-94-6	290	293	nt
Acrolein		107-02-8	120	121	T
Acrylamide		79-06-1	130	135	T
Acrylic acid		79-10-7	100	102	T
Acrylic acid butyl ester	n-Butyl acrylate	141-32-2	220	223	T
Acrylic acid ethyl ester	Ethyl acrylate	140-88-5	220	223	T
Acrylic acid methyl ester	Methyl acrylate	96-33-3	220	223	T
Acrylonitrile		107-13-1	430	431	T
Adipic acid		124-04-9	100	104	nt
Adiponitrile		111-69-3	430	431	T
AFFF		191681-14-8	590	590	nt
Allyl alcohol		107-18-6	310	311	T
Allylamine		107-11-9	140	141	nt
Allyl bromide		106-95-6	260	265	nt
Allyl chloride		107-05-1	260	265	T
Allyl glycidyl ether		106-92-3	270	275	nt
Aluminum chloride		7446-70-0	360	360	nt
Aluminum fluoride		7784-18-1	360	360	nt
Aluminum hydroxide		21645-51-2	380	380	nt
Aluminum nitrate		13473-90-0	340	340	nt
Aluminum phosphate		7784-30-7	340	340	nt
Aluminum sulfate		10043-01-3	340	340	nt
Aluminum sulfate hydrate		17927-65-0	340	340	nt
Aminobutane	sec-Butylamine	13952-84-6	140	141	nt
2-Aminoethanol	Ethanolamine	141-43-5	140 / 310	141 / 311	T
2-Aminopropane	Isopropylamine	75-31-0	140	141	T
2-Aminopyridine		504-29-0	270	271	T
Ammonia gas		7664-41-7	350	350	T
Ammonia liquid		7664-41-7	350 / 380	350 / 380	T
Ammonia solution	Ammonium hydroxide	1336-21-6	380	380	T

**CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms**

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Ammonium acetate		631-61-8	340	340	nt
Ammonium chloride		12125-02-9	340	340	nt
Ammonium fluoride		12125-01-8	340	340	T
Ammonium hydroxide		1336-21-6	380	380	T
Ammonium sulfate		7783-20-2	340	340	nt
Ammonium sulfide		12135-76-1	340	340	nt
n-Amyl acetate		628-63-7	220	222	T
Iso-amyl alcohol	Isoamyl alcohol	123-51-3	310	312	T
Aniline		62-53-3	140	145	T
Anisoyl chloride		100-07-2	110 / 240	112 / 243	nt
Anthracene		120-12-7	290	293	T
Antimony pentachloride		7647-18-9	360	360	T
Antimony pentafluoride		7783-70-2	360	360	nt
Antimony trichloride		10025-91-9	340	340	nt
Arsenic acid		7778-39-4	370	370	nt
Arsenic pentoxide		1303-28-2	365	365	nt
Arsenic trichloride		7784-34-1	340	340	nt
Arsenic trioxide		1327-53-3	365	365	nt
Arsine		7784-42-1	350	350	T
Azinphos	Azinphos ethyl	2642-71-9	460	462	nt
Azinphos ethyl		2642-71-9	460	462	nt
Barium cyanide		542-62-1	345	345	nt
Benzaldehyde		100-52-7	120	122	nt
1,2-Benzanthracene		56-55-3	290	293	nt
Benzene		71-43-2	290	292	T
1,3-Benzenediol		108-46-3	310	316	nt
Benzene hexachloride	Lindane	58-89-9	260	261	T
Benzene sulfonyl chloride		98-09-9	500	505	T
Benzenethiol	Phenyl mercaptan	108-98-5	500	501	T
Benzidine		92-87-5	140	145 / 149	T
Benzonitrile		100-47-0	430	432	T
Benzophenanthrene		129-00-0	290	293	nt
1,2-Benzophenanthrene		218-01-9	290	293	nt
Benzo[a]pyrene		50-32-8	290	292 / 293	T
Benzotrichloride		98-07-7	260	263	nt
Benzoyl chloride		98-88-4	110	112	T
Benzyl acetate		140-11-4	220	222	nt
Benzyl alcohol		100-51-6	310	312	T
Benzyl benzoate		120-51-4	220	226	nt
Benzyl bromide		100-39-0	260	266	nt
Benzyl chloride		100-44-7	260	266	T
Benzyl chloroformate		501-53-1	110	113	nt
Beta-Chloroprene	2-Chloro-1,3-butadiene	126-99-8	260	264	nt
4,4'-bis (Aminophenyl) methane	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T
Bis (2-chloroethyl) sulfide	Sulfur mustard	505-60-2	500 / 595	502 / 595	T
Bis(chloromethyl) ether		542-88-1	240 / 260	241 / 261	nt
Bis(chloromethyl) ketone	1,3 Dichloroacetone	534-07-6	260 / 390	261 / 391	T
Bis(2-ethylhexyl) phthalate	Di (2-ethylhexyl) phthalate	117-81-7	220	226	T

## CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Bisphenol A		80-05-7	310	316	nt
Bisphenol-A diglycidyl ether		1675-54-3	270	275	T
Bis(tributyltin)oxide		56-35-9	470	470	nt
Black Liquor		308074-23-9	590	590	T
Bladex®		21725-46-2	270 / 430	274 / 431	nt
Borane pyridine complex		110-51-0	590	590	nt
Boric acid		10043-35-3	370	370	nt
Boron trichloride		10294-34-5	350 / 360	350 / 360	T
Boron trifluoride		7637-07-2	350 / 360	350 / 360	T
Boron trifluoride diethyl etherate	Boron trifluoride etherate	109-63-7	590	590	T
Boron trifluoride etherate		109-63-7	590	590	T
Bromine		7726-95-6	330	330	T
Bromine cyanide	Cyanogen bromide	506-68-3	345 / 350	345 / 350	nt
Bromine pentafluoride		7789-30-2	360	360	nt
Bromoacetonitrile		590-17-0	430	431	nt
Bromobenzene		108-86-1	260	263	nt
Bromochloromethane		74-97-5	260	261	nt
2-Bromoethanol		540-51-2	260 / 310	261 / 315	nt
4-Bromofluorobenzene		460-00-4	260	263	T
Bromomethane	Methyl bromide	74-83-9	260	261	T
1-Bromo propane		106-94-5	310	315	nt
1-Bromo-2-propanol		19686-73-8	260 / 310	261 / 315	nt
3-Bromo-1-propanol		627-18-9	260 / 310	261 / 315	nt
1,3-Butadiene		106-99-0	290	296	T
1,4-Butanediol		110-63-4	310	314	nt
1,4-Butanediol diglycidyl ether		2425-79-8	270	275	nt
n-Butane		106-97-8	290	291	nt
1,4-Butanesultone		1633-83-6	500	503	nt
n-Butanethiol		109-79-5	500	501	nt
1-Butanol	n-Butanol	71-36-3	310	311	T
n-Butanol		71-36-3	310	311	T
2-Butanone	Methyl ethyl ketone	78-93-3	390	391	T
2-Butanone peroxide		1338-23-4	300	300	nt
Butene		106-98-9	290	294	nt
2-Butoxyethanol	Butyl Cellosolve®	111-76-2	240	245	T
2-Butoxyethyl acetate		112-07-2	240	245	nt
n-Butyl acetate		123-86-4	220	222	T
n-Butyl acrylate		141-32-2	220	223	T
n-Butyl alcohol	n-Butanol	71-36-3	310	311	T
sec-Butyl alcohol		78-92-2	310	312	nt
tert-Butyl alcohol		75-65-0	310	313	nt
n-Butylamine		109-73-9	140	141	T
sec-Butylamine		13952-84-6	140	141	nt
tert-Butylamine		75-64-9	140	141	T
n-Butyl benzoate		136-60-7	220	226	nt
Butyl benzyl phthalate		85-68-7	220	226	nt
n-Butyl Carbitol®		112-34-5	240	245	nt
4-tert-Butyl catechol		98-29-3	310	316	nt

**CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms**

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Butyl Cellosolve® acetate		112-07-2	240	245	nt
n-Butyl chloride		109-69-3	260	261	nt
1,3-Butylene glycol		107-88-0	310	314	nt
1,2-Butylene oxide		106-88-7	270	275	nt
n-Butyl ether		142-96-1	240	241	T
Butyl glycol	Butyl Cellosolve®	111-76-2	240	245	T
n-Butyl mercaptan		109-79-5	500	501	nt
tert-Butyl mercaptan		75-66-1	500	501	nt
tert-Butyl methyl ether	Methyl tert-butyl ether	1634-04-4	240	241	T
o-sec-Butylphenol		89-72-5	310	316	nt
p-tert-Butylphenol		98-54-4	310	316	nt
n-Butyl phthalate		84-74-2	220	226	nt
Butyl Cellosolve®		111-76-2	240	245	T
n-Butyraldehyde		123-72-8	120	121	T
n-Butyric acid		107-92-6	100	102	T
Butyrolactone, gamma-		96-48-0	220	225	nt
Cadaverine		462-94-2	140	148	nt
Cadmium fluoroborate		14486-19-2	360	360	nt
Calcia		1305-78-8	380	380	nt
Calcium bisulfate		13780-03-5	340	340	nt
Calcium carbonate		1317-65-3	340	340	nt
Calcium chloride		10043-52-4	340	340	nt
Calcium cyanide		592-01-8	345	345	nt
Calcium fluoride		7789-75-5	340	340	nt
Calcium hydroxide		1305-62-0	380	380	nt
Calcium oxide		1305-78-8	380	380	nt
Carbitol®	Ethylene diglycol monoethyl ether	111-90-0	240	245	T
Carbolic acid	Phenol	108-95-2	310	316	T
Carbon disulfide		75-15-0	500	502	T
Carbon hexachloride		67-72-1	260	261	nt
Carbon monoxide		630-08-0	350	350	T
Carbon tetrabromide		558-13-4	260	261	nt
Carbon tetrachloride		56-23-5	260	261	T
Carbonyl chloride	Phosgene	75-44-5	350	350	T
Caustic soda	Sodium hydroxide	1310-73-2	380	380	T
Cellosolve®	Ethyl Cellosolve®	110-80-5	240	245	T
Cellosolve® acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T
CFC 11		75-69-4	260	261	nt
CFC 113	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	260	261	T
Chemidize 727 ND		mixture	590	590	T
Chlordane		57-74-9	260	261	T
Chlorine		7782-50-5	330 / 350	330 / 350	T
Chlorine cyanide		506-77-4	345	345	nt
Chlorine dioxide		10049-04-4	350	350	T
Chlorine oxide	Chlorine dioxide	10049-04-4	350	350	T
Chlorine sulfide	Sulfur dichloride	10545-99-0	500	502	T
Chlorine trifluoride		7790-91-2	350	350	T
2-Chloroacetaldehyde		107-20-0	120 / 260	121 / 261	nt

## CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Chloroacetic acid		79-11-8	100	103	T
Chloroacetone		78-95-5	390	391	T
Chloroacetonitrile		107-14-2	260 / 430	261 / 431	nt
Chloroacetophenone		532-27-4	260 / 390	261 / 392	nt
Chloroacetyl chloride		79-04-9	110	111	T
Chloroacrylonitrile		920-37-6	260 / 430	264 / 431	nt
4-Chloroaniline	p-Chloroaniline	106-47-8	140	145	T
o-Chloroaniline		95-51-2	140	145	nt
p-Chloroaniline		106-47-8	140	145	T
Chlorobenzene		108-90-7	260	263	T
4-Benzotrichloride		5216-25-1	260	263	nt
4-Chlorobenzotrifluoride		98-56-6	260	263	nt
2-Chloro-1,3-butadiene		126-99-8	260	264	nt
4-Chloro-m-cresol		59-50-7	260 / 310	263 / 316	nt
Chlorodecane mixed isomers		28519-06-4	260	261	nt
Chlorododecane		112-52-7	260	261	nt
2-Chloroethanol		107-07-3	260 / 310	261 / 315	T
2-(2-Chloroethenyl) arsenous dichloride	Lewisite	541-25-3	470 / 595	470 / 595	T
2-Chloroethyl ether	Dichloroethyl ether	111-44-4	240 / 260	241 / 261	T
2-Chloroethyl vinyl ether		110-75-8	240 / 260	241 / 261	nt
Chloroform		67-66-3	260	261	T
Chloromethane	Methyl chloride	74-87-3	260	261	T
Chloromethyl methyl ether		107-30-2	240	241	T
3-Chloro-2-methylpropene		563-47-3	260	265	nt
2-Chlorophenol		95-57-8	260 / 310	263 / 316	nt
3-Chlorophenol		108-43-0	260 / 310	263 / 316	nt
4-Chlorophenol		106-48-9	260 / 310	263 / 316	T
o-Chlorophenol		95-57-8	260 / 310	263 / 316	nt
p-Chlorophenol	4-Chlorophenol	106-48-9	260 / 310	263 / 316	T
Chlorophenol, mixture of 2-, 3-, 4-		mixture	260 / 310	263 / 316	nt
Chloropicrin		76-06-2	260	261	nt
Chloroprene	2-Chloro-1,3-butadiene	126-99-8	260	264	nt
1-Chloropropane		540-54-5	260	261	nt
1-Chloro-2-propanol		127-00-4	260 / 310	261 / 315	nt
3-Chloro-1-propanol		627-30-5	260 / 310	261 / 315	nt
3-Chloropropene	Allyl chloride	107-05-1	260	265	T
3-Chloroproprionitrile		542-76-7	260 / 430	261 / 431	nt
Chloropyrifos		2921-88-2	460	462	T
Chlorosulfonic acid		7790-94-5	370 / 500	370 / 504	T
a-Chlorotoluene	Benzyl chloride	100-44-7	260	266	T
o-Chlorotoluene		95-49-8	260	263	T
2-Chlorovinylarsine dichloride	Lewisite	541-25-3	470 / 595	470 / 595	T
Chromic acetate		1066-30-4	550	550	nt
Chromic acid		1333-82-0	370	370	T
Chromic anhydride	Chromic acid	1333-82-0	370	370	T
Chromic sulfate		10101-53-8	340	340	nt
Chromium oxide	Chromic acid	1333-82-0	370	370	T
Chrysene		218-01-9	290	293	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Citric acid		77-92-9	100	104	nt
Coal naphtha	Benzene	71-43-2	290	292	T
Copper cyanide		544-92-3	345	345	nt
Creosote		8001-58-9	310	316	T
Cresol, mixed isomers		1319-77-3	310	316	T
m-Cresol		108-39-4	310	316	nt
m-Cresol 55%, p-Cresol 30%, Phenol 15%		mixture	310	316	T
o-Cresol		95-48-7	310	316	T
trans-Crotonaldehyde		123-73-9	120	121	T
Crude oil		8002-05-9	290 / 590	294 / 590	T
Cumene		98-82-8	290	292	T
Cumene peroxide		80-43-3	300	300	nt
Cupric sulfate		7758-98-7	340	340	nt
Cuprous cyanide		544-92-3	345	345	nt
Cyanamide		420-04-2	345	345	nt
Cyanex®		mixture	460	461	nt
Cyanide	Hydrogen cyanide	74-90-8	345 / 370	345 / 370	T
Cyanizine		21725-46-2	270 / 430	274 / 431	nt
Cyanoacetic acid		372-09-8	100	103	nt
Cyanogen		460-19-5	345	345	nt
Cyanogenamide		420-04-2	345	345	nt
Cyanogen bromide		506-68-3	345 / 350	345 / 350	nt
Cyanogen bromide 30%		mixture	345 / 350	345 / 350	nt
Cyanogen chloride		506-77-4	345	345	nt
Cyanuric chloride		108-77-0	260 / 270	263 / 274	T
Cyclohexane		110-82-7	290	291	T
Cyclohexanol		108-93-0	310	312	nt
Cyclohexanone		108-94-1	390	391	T
Cyclohexylamine		108-91-8	140	141	nt
Cyclohexyl isocyanate		3173-53-3	210	211	T
Cyclonol		116-02-9	310	312	nt
Cyclooctadiene		1552-12-1	290	296	nt
Cyclopentane		287-92-3	290	291	nt
p-Cymene		25155-15-1	290	292	nt
Decahydronaphthalene		91-17-8	290	291	nt
n-Decanal		112-31-2	120	121	nt
Decane		124-18-5	290	291	nt
Decontaminating agent DS-2		mixture	590	590	nt
n-Decyl aldehyde		112-31-2	120	121	nt
Diallylamine		124-02-7	140	142	nt
p,p'-Diaminodiphenyl methane	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T
Di-n-amylamine		2050-92-2	140	142	nt
Diazinon		333-41-5	460	462	T
Diborane		19287-45-7	350	350	T
1,4-Dibromobutane		110-52-1	260	261	nt
1,2-Dibromo-3-chloropropane		96-12-8	260	261	nt
1,2-Dibromoethane	Ethylene dibromide	106-93-4	260	261	T
Dibromomethane		74-95-3	260	261	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Di-n-butylamine		111-92-2	140	142	nt
Dibutyl ether	n-Butyl ether	142-96-1	240	241	T
Dibutylphenol		26746-38-3	310	316	nt
Dibutyl phthalate		84-74-2	220	226	nt
Dichloroacetic acid		79-43-6	100	103	nt
1,3-Dichloroacetone		534-07-6	260 / 390	261 / 391	T
Dichloroacetyl chloride		79-36-7	110	111	T
Dichloroacetylene	trans-1,2-Dichloroethylene	156-60-5	260	264	T
3,4-Dichloroaniline		95-76-1	140 / 260	145 / 263	T
1,2-Dichlorobenzene		95-50-1	260	263	nt
3,3'-Dichlorobenzidine		91-94-1	140 / 260	149 / 263	nt
1,4-Dichloro-2-butene		110-57-6	260	264	nt
trans-1,4-Dichloro-2-butene		764-41-0	260	264	T
1,1-Dichloroethane		75-34-3	260	261	nt
1,2-Dichloroethane		107-06-2	260	261	T
1,2-Dichloroethene	1,2-Dichloroethylene	540-59-0	260	264	nt
1,1-Dichloroethylene	Vinylidene chloride	75-35-4	260	264	T
1,2-Dichloroethylene		540-59-0	260	264	nt
Dichloroethylene, all isomers		25323-30-2	260	264	nt
trans-1,2-Dichloroethylene		156-60-5	260	261	T
Dichloroethyl ether		111-44-4	240 / 260	241 / 261	T
Dichloroisopropyl ether		108-60-1	240 / 260	241 / 261	nt
2,3-Dichloro-6-isopropyl-S-triazine		30894-74-7	270	274	T
Dichloromethane		75-09-2	260	261	T
sym-Dichloromethyl ether		542-88-1	240 / 260	241 / 261	nt
2,4-Dichlorophenol		120-83-2	260 / 310	263 / 316	nt
1,2-Dichloropropane	Propylene dichloride	78-87-5	260	261	T
1,3-Dichloro-2-propanone	1,3 Dichloroacetone	534-07-6	260 / 390	261 / 391	T
1,3-Dichloropropene		542-75-6	260	261	T
2,3-Dichloropropene		78-88-6	260	261	T
Dichlorosilane		4109-96-0	480	480	T
Dichlorosulfane	Sulfur dichloride	10545-99-0	500	502	T
1,1-Dichlorotetrafluoroethane		374-07-2	260	261	T
Dichlorotriazine 20%, Toluene 80%		mixture	260	263	nt
Diesel fuel		68334-30-5	290	291	T
Diesel automotive test fuel		mixture	290	291	T
Diethanolamine		111-42-2	140	142	nt
Diethylamine		109-89-7	140	142	T
Diethylaniline crude		91-66-7	140	146	T
Diethyl arsine		692-42-2	470	470	nt
Diethyl carbonate		105-58-8	230	233	nt
2,2'-Diethyldihexylamine		106-20-7	140	142	nt
1,4-Diethylenediamine		110-85-0	270	274	nt
Diethylene dioxide	1,4-Dioxane	123-91-1	270	278	T
Diethylene glycol		111-46-6	310	314	nt
Diethylene glycol monomethyl ether		111-77-3	240	245	nt
Diethylenetriamine		111-40-0	140	148	T
N,N-Diethylethanolamine		100-37-8	140	143	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Diethyl ether	Ethyl ether	60-29-7	240	241	T
Di (2-ethylhexyl) phthalate		117-81-7	220	226	T
Diethylhydrazine		1615-80-1	280	280	nt
Diethyl phthalate		84-66-2	220	226	nt
Diethyl sulfate		64-67-5	500	507	T
Diethyl-m-toluidine crude		91-67-8	140	145	T
Dihydrogen Oxide		7732-18-5	590	590	nt
Diisobutylamine		111-92-2	140	142	nt
Diisobutyl ketone		108-83-8	390	391	nt
Diisobutyl phthalate		84-69-5	220	226	nt
1,6-Diisocyanatohexane	1,6-Hexamethylene diisocyanate	822-06-0	210	211	T
Diisopropylamine		108-18-9	140	142	nt
Dimethoxane		828-00-2	270	278	nt
N,N-Dimethylacetamide		127-19-5	130	132	T
Dimethylamine		124-40-3	140	142	T
2-Dimethyl aminoethanol		108-01-0	140	143	nt
3-Dimethyl aminopropylamine		109-55-7	140	148	nt
N,N-Dimethylaniline		121-69-7	140	146	T
1,3-Dimethyl butylamine		108-09-8	140	143	nt
Dimethyldichlorosilane		75-78-5	480	480	T
Dimethyl disulfide		624-92-0	500	502	nt
Dimethylene oxide	Ethylene oxide	75-21-8	270	275	T
Dimethyl ether		115-10-6	240	241	T
N,N-Dimethylformamide		68-12-2	130	132	T
1,1-Dimethylhydrazine		57-14-7	280	280	T
Dimethyl maleate		624-48-6	220	224	T
Dimethylmorpholine		141-91-3	140	142	nt
Dimethyl nitrosamine		62-75-9	450	450	T
2,4-Dimethylphenol		105-67-9	310	316	nt
Dimethylphenylamine		1300-73-8	140	145	nt
Dimethyl phthalate		131-11-3	220	226	nt
Dimethyl sulfate		77-78-1	500	507	T
Dimethyl sulfide		75-18-3	500	502	T
Dimethyl sulfoxide		67-68-5	500	503	T
Dimethyl terephthalate		120-61-6	220	226	nt
Dimethylvinyl chloride		513-37-1	260	264	nt
Dinitro-o-cresol		534-52-1	310 / 440	316 / 442	T
Dinitrophenol		25550-58-7	310 / 440	316 / 442	nt
Di-n-octyl phthalate		117-84-0	220	226	nt
1,4-Dioxane		123-91-1	270	278	T
Dioxin		1746-01-6	260	263	nt
1,3-Dioxolane		646-06-0	240	241	nt
Dipentene		138-86-3	290	296	nt
Dipentyl amine		2050-92-2	140	142	nt
Diphenylamine		122-39-4	140	146	nt
4,4'-Diphenyl methane diisocyanate		101-68-8	210	212	T
n-Dipropylamine		142-84-7	140	142	nt
Disodium sulfite		7757-83-7	340	340	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Disulfur dichloride		10025-67-9	500	502	T
Divinyl benzene		1321-74-0	290	292	nt
DMAC	N,N-Dimethylacetamide	127-19-5	130	132	T
DMF	N,N-Dimethylformamide	68-12-2	130	132	T
DMSO	Dimethyl sulfoxide	67-68-5	500	503	T
tert-Dodecanethiol		25103-58-6	500	501	nt
Dodecyl benzene sulfonate		25155-30-0	500	507	nt
tert-Dodecyl mercaptan		25103-58-6	500	501	nt
Dowtherm A		8004-13-5	590	590	nt
DuPont Activators with hexamethylenediisocyanate		mixture	210 / 590	211 / 590	T
Epibromohydrin		3132-64-7	270	275	nt
Epichlorohydrin		106-89-8	260 / 270	261 / 275	T
1,2-Epoxybutane		106-88-7	270	275	nt
1,2-Epoxyethane	Ethylene oxide	75-21-8	270	275	T
Epoxypropane	1,2-Propylene oxide	75-56-9	270	275	T
1,2-Epoxy-3-(tolyoxy)propane		26447-14-3	270	275	nt
Epoxytrichloropropane		67664-94-2	270	275	nt
Epsom salts		7487-88-9	340	340	nt
Ethanal	Acetaldehyde	75-07-0	120	121	T
Ethanol		64-17-5	310	311	nt
Ethanolamine		141-43-5	140 / 310	141 / 311	T
2-Ethoxyethanol	Ethyl Cellosolve®	110-80-5	240	245	T
2-(2-Ethoxyethoxy)ethanol	Ethylene diglycol monoethyl ether	111-90-0	240	245	T
2-Ethoxyethyl acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T
Ethyl acetate		141-78-6	220	222	T
Ethyl acetoacetate		141-97-9	220	222	nt
Ethyl acrylate		140-88-5	220	223	T
Ethyl alcohol	Ethanol	64-17-5	310	311	nt
Ethylamine		75-04-7	140	141	T
Ethyl benzene		100-41-4	290	290	T
Ethyl benzene 80%, 4,6-Dinitro-o-cresol 20%		mixture	590	590	T
Ethyl benzene hydroperoxide		3071-32-7	300	300	nt
Ethyl benzoate		93-89-0	220	226	nt
2-Ethylbutylamine		617-79-8	140	141	nt
Ethyl carbamate		51-79-6	230	233	nt
Ethyl Carbitol®	Ethylene diglycol monoethyl ether	111-90-0	240	245	T
Ethyl Cellosolve®		110-80-5	240	245	T
Ethyl Cellosolve® acetate		111-15-9	240	245	T
Ethyl chloride		75-00-3	260	261	T
Ethyl cyanide		107-12-0	345	345	nt
Ethylene		74-85-1	290	294	nt
Ethylenediamine		107-15-3	140	148	T
Ethylene dibromide		106-93-4	260	261	T
Ethylene dichloride	1,2-Dichloroethane	107-06-2	260	261	T
Ethylene diglycol monoethyl ether		111-90-0	240	245	T
Ethylene glycol		107-21-1	310	314	T
Ethylene glycol acrylate	Hydroxyethyl acrylate	818-61-1	220	223	nt
Ethylene glycol diacetate		111-55-7	220	222	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Ethylene glycol monoacetate		542-59-6	220	222	nt
Ethylene glycol monomethyl ether	Methyl Cellosolve® acetate	110-49-6	240	245	T
Ethylene glycol monopropyl ether		2807-30-9	240	245	nt
Ethyleneimine		151-56-4	270	274	T
Ethylene oxide gas		75-21-8	270	275	T
Ethylene oxide liquid		75-21-8	270	275	T
Ethylene oxide, 10% in HCFC 124		mixture	270	274	T
Ethylenylbenzene	Styrene	100-42-5	290	292	T
Ethyl ether		60-29-7	240	241	T
Ethyl fluoroacetate		459-72-3	220	222	nt
Ethyl hexaldehyde		123-05-7	120	121	nt
2-Ethylhexanoic acid		149-57-5	100	102	nt
2-Ethylhexanol		104-76-7	310	311	nt
2-Ethylhexyl acrylate		103-11-7	220	223	nt
2-Ethylhexylamine		104-75-6	140	141	nt
Ethyl iodide		75-03-6	260	261	nt
Ethyl mercaptan		75-08-1	500	501	nt
Ethyl methacrylate		97-63-2	220	223	nt
Ethyl methanesulfonate		62-50-0	500	507	nt
Ethyl parathion		56-38-2	460	462	T
Ethylphenol		90-00-6	310	316	nt
2-Ethyltoluene		611-14-3	290	292	nt
Ethyl vinyl ether		109-92-2	240 / 260	246 / 261	nt
Ferric chloride		7705-08-0	340	340	nt
Ferric fluoride		7783-50-8	340	340	nt
Ferrous chloride		7758-94-3	340	340	nt
Fluorene		86-73-7	290	293	nt
Fluorine		7782-41-4	350	350	T
Fluoroacetamide		640-19-7	130	132	nt
Fluorobenzene		462-06-6	260	263	T
Fluoroboric acid		16872-11-0	370	370	T
Fluorosilicic acid		16961-83-4	370	370	T
Fluorosulfonic acid		7789-21-1	370	370	T
Fluorosulfuric acid	Fluorosulfonic acid	7789-21-1	370	370	T
Fluosilicic acid	Fluosilicic acid	16961-83-4	370	370	T
Formaldehyde		50-00-0	120	121	T
Formalin		50-00-0	120	121	T
Formamide		75-12-7	130	132	nt
Formic acid		64-18-6	100	102	T
Fuel oil		mixture	290	291	T
Fuel Oil #2	Diesel fuel	68334-30-5	290	291	T
Fuming sulfuric acid	Oleum	8014-95-7	370	370	T
2-Furaldehyde		98-01-1	120 / 270	122 / 277	T
Furan		110-00-9	270	277	nt
2-Furancarbal	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T
2-Furancarboraldehyde	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T
Furfural	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T
Furfuryl alcohol		98-00-0	310	318	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
2-Furyl methanol		98-00-0	310	318	nt
GA	Tabun	77-81-6	460 / 595	462 / 595	T
gamma-Butyrolactone	Butyrolactone	96-48-0	220	225	nt
Gasoline		86290-81-5	290	291 / 292	T
GB	Sarin	107-44-8	460 / 595	462 / 595	T
GD	Soman	96-64-0	460 / 595	462 / 595	T
Glade Intech 200		unk	590	590	T
Glutaraldehyde		111-30-8	120	121	T
Glycerine		56-81-5	310	314	nt
Glycerol	Glycerine	56-81-5	310	314	nt
Glycidaldehyde		765-34-4	270	275	nt
Glycolic acid, sat. sol.in water		79-14-1	100	103	T
Glycol monobutyl ether	Butyl Cellosolve®	111-76-2	240	245	T
Glycol monoethyl ether acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T
Grain alcohol	Ethanol	64-17-5	310	311	nt
Green liquor		68131-30-6	590	590	T
Guthion ethyl	Azinphos ethyl	2642-71-9	460	462	T
Halothane		151-67-7	260	261	nt
HD	Sulfur mustard	505-60-2	500 / 595	502 / 595	T
Heating oil	Diesel fuel	68334-30-5	290	291	T
n-Heptane		142-82-5	290	291	nt
Hexachlorobenzene		118-74-1	260	263	nt
Hexachlorobutadiene		87-68-3	260	264	nt
Hexachlorocyclopentadiene		77-47-4	260	264	nt
Hexachloroethane		67-72-1	260	261	nt
1,1,1,3,3,3-Hexachloropropane		3607-78-1	260	264	T
Hexachloropropene		1888-71-7	260	264	nt
Hexafluoroethane		76-16-4	260	261	T
Hexafluoroisobutylene		382-10-5	260	261	T
Hexaldehyde		66-25-1	120	121	nt
Hexamethyldisilazane		999-97-3	140 / 480	142 / 480	T
Hexamethylene diamine		124-09-4	140	148	T
Hexamethylene diisocyanate		822-06-0	210	211	T
Hexamethylene diisocyanate in DuPont Activators		mixture	590	590	T
Hexamethylenetriamine		100-97-0	270	274	nt
Hexamine		100-97-0	270	274	nt
1-Hexanal		66-25-1	120	121	nt
n-Hexane		110-54-3	290	291	T
1-Hexene		592-41-6	290	294	nt
Hexyl alcohol		111-27-3	310	311	nt
HF	Hydrogen fluoride	7664-39-3	350	350	T
HMDI	1,6-Hexamethylenediisocyanate	822-06-0	210	211	T
Hydrazine		302-01-2	280	280	T
Hydrazine hydrate		10217-52-4	280	280	T
Hydrazobenzene		122-66-7	280	280	nt
Hydriodic acid		10034-85-2	370	370	T
Hydriodic ether		75-03-6	260	261	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Hydrobromic acid		10035-10-6	370	370	nt
Hydrochloric acid		7647-01-0	370	370	T
Hydrocyanic acid	Hydrogen cyanide liquid	74-90-8	345 / 370	345 / 370	T
Hydrofluoric acid		7664-39-3	370	370	T
Hydrofluorosilicic acid	Fluorosilicic acid	16961-83-4	370	370	T
Hydrogen bromide		10035-10-6	350 / 370	350 / 370	T
Hydrogen chloride gas		7647-01-0	350	350	T
Hydrogen cyanide gas		74-90-8	345 / 350	345 / 350	T
Hydrogen cyanide liquid		74-90-8	345 / 370	345 / 370	T
Hydrogen fluoride gas		7664-39-3	350	350	T
Hydrogen fluoride liquid		7664-39-3	350 / 370	350 / 370	T
Hydrogen peroxide		7722-84-1	300	300	T
Hydrogen selenide		7783-07-5	350	350	T
Hydrogen sulfide		7783-06-4	350 / 500	350 / 502	T
Hydroquinone		123-31-9	310	316	nt
Hydrosilicofluoric acid	Fluorosilicic acid	1696-83-4	370	370	T
Hydroxybenzene	Phenol	108-95-2	310	316	T
Hydroxyethyl acrylate		818-61-1	220	223	nt
Hydroxylamine sulfate		10039-54-0	500	507	nt
Hypophosphorus acid		6303-21-5	370	370	nt
Iodine		7553-56-2	330	330	T
Iodine, molten		7553-56-2	330	330	nt
Iodomethane	Methyl iodide	74-88-4	260	261	T
Isoamyl alcohol		123-51-3	310	312	T
Isobutane		75-28-5	290	291	nt
Isobutanol		78-83-1	310	311	nt
Isobutyl acrylate		106-63-8	220	223	nt
Isobutyl alcohol	Isobutanol	78-83-1	310	311	nt
Isobutylamine		78-81-9	140	141	nt
Isobutylbenzene		538-93-2	290	292	nt
Isobutyl nitrite		542-56-3	430	431	nt
Isobutyraldehyde		78-84-2	120	121	nt
Isotaldehyde		63885-09-6	120	121	nt
Isocyanuric chloride		87-90-1	270	274	nt
Isooctane		592-27-8	290	291	nt
Isopentane		78-78-4	290	291	nt
Isopentyl alcohol	Isoamyl alcohol	123-51-3	310	311	T
Isophorone		78-59-1	390	391	nt
Isophorone diisocyanate		4098-71-9	210	211	nt
Isoprene		78-79-5	290	296	nt
Isopropanol		67-63-0	310	312	T
Isopropyl acetate		108-21-4	220	222	nt
Isopropyl alcohol	Isopropanol	67-63-0	310	312	T
Isopropylamine		75-31-0	140	141	T
Isopropyl benzene	Cumene	98-82-8	290	292	T
Isopropyl chloride		75-29-6	260	261	nt
Isopropyl ether		108-20-3	240	241	nt
4,4'-Isopropylidinediphenol		80-05-7	310	316	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Isopropyl methacrylate		4655-34-9	220	223	nt
Isopropyl methanefluorophosphonate	Sarin	107-44-8	460 / 595	462 / 595	T
Isovaleraldehyde		590-86-3	120	121	nt
Jet A fuel		8008-20-6	290	291	T
JP-4 jet fuel		mixture	290	291	T
JP-8 jet fuel		8008-20-6	290	291	T
Kerosene		8008-20-6	290	291	T
L	Lewisite	541-25-3	470 / 595	470 / 595	T
Lactic acid		50-21-5	100	103	nt
Lannate® LV	Methomyl	16752-77-5	230	233	T
Lauric acid		143-07-7	100	102	nt
Lead fluoroborate		13814-96-5	340	340	nt
Lead sulfate		7446-14-2	340	340	nt
Lewisite (L) Chemical Agent		541-25-3	470 / 595	470 / 595	T
Ligroine	VM&P naphtha	8032-32-4	290	291	T
Lime hydrate		1305-62-0	380	380	nt
d-Limonene		5989-27-5	290	296	T
Lindane		58-89-9	260	261	T
Linoleic acid		60-33-3	100	102	nt
Lithium chloride		7447-41-8	340	340	T
Lithium chromate		14307-35-8	340	340	nt
Lithium hydroxide		1310-65-2	380	380	T
Lupranate®	Polymethylene polyphenylpolyisocyanate	9106-87-9	210	212	T
Magnesium sulfate		7487-88-9	340	340	nt
Malathion		121-75-5	460	462	T
Maleic acid		110-16-7	100	104	nt
Maleic anhydride		108-31-6	160	161	nt
Malic acid		6915-15-7	100	104	nt
MDA	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T
MEK	Methyl ethyl ketone	78-93-3	390	391	T
p-Mentha-1,8-diene	d-Limonene	5989-27-5	290	296	T
Mercaptoacetic acid	Thioglycolic acid	68-11-1	100 / 500	103 / 501	T
Mercuric chloride		7487-94-7	340	340	T
Mercuric cyanide		592-04-1	345	345	nt
Mercury		7439-97-6	330	330	T
Mesityl oxide		141-79-7	390	391	nt
Methacrylamide		79-39-0	130	135	nt
Methacrylic acid		79-41-4	100	102	T
Methacrylonitrile		126-98-7	430	431	nt
Methane		74-82-8	290	291	nt
Methanesulfonic acid		75-75-2	500	504	T
Methanethiol	Methyl mercaptan	74-93-1	500	501	T
Methanoic acid	Formic acid	64-18-6	100	102	T
Methanol		67-56-1	310	311	T
Methomyl		16752-77-5	230	233	T
2-Methoxyethanol	Methyl Cellosolve®	109-86-4	240	245	T
2-Methoxyethyl acetate	Methyl Cellosolve® acetate	110-49-6	240	245	T
1-Methoxy-2-propanol		107-98-2	240	245	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Methyl acetate		79-20-9	220	222	nt
Methyl acrylate		96-33-3	220	223	T
Methylacrylic acid		777-77-7	300	300	nt
2-Methylacetonitrile	Acetone cyanohydrin	75-86-5	310 / 430	313 / 431	T
Methyl alcohol	Methanol	67-56-1	310	311	T
Methylamine		74-89-5	140	141	T
Methyl aminopropylamine		6291-84-5	140	148	nt
2-Methylaniline	o-Toluidine	95-53-4	140	145	T
N-Methylaniline		100-61-8	140	146	nt
2-Methylbenzenethiol		137-06-4	500	501	nt
Methyl bromide		74-83-9	260	261	T
Methyl tert-butyl ether		1634-04-4	240	241	T
Methyl n-butyl ketone		591-78-6	390	391	nt
Methyl carbitol		111-77-3	240	245	nt
Methyl Cellosolve®		109-86-4	240	245	T
Methyl Cellosolve® acetate		110-49-6	240	245	T
Methyl chloride		74-87-3	260	261	T
Methyl chloroacetate		96-34-4	220	222	nt
Methyl chloroform	1,1,1-Trichloroethane	71-55-6	260	261	T
Methyl chloroformate		79-22-1	110	113	T
Methylene bis (cyclohexylisocyanate)		5124-30-1	210	211	nt
4,4'-Methylene bis (o-chloroaniline)		101-14-4	140	149	T
Methylene bromide		74-95-3	260	261	nt
Methylene chloride	Dichloromethane	75-09-2	260	261	T
4,4'-Methylene dianiline		101-77-9	140	145 / 149	T
N-Methylethanolamine		109-83-1	140	142	nt
Methyl ether	Dimethyl ether	115-10-6	240	241	T
Methyl ethyl ketone		78-93-3	390	391	T
Methyl ethyl ketone B393peroxide		1338-23-4	300	300	nt
Methyl ethyl ketoxime		96-29-7	590	590	T
Methyl ethyl pyridine		104-90-5	270	271	nt
Methyl fluoride		593-53-3	260	261	T
Methyl formate		107-31-3	220	221	nt
2-Methylglutaronitrile		4553-62-2	430	431	T
Methylhydrazine		60-34-4	280	280	T
Methyl iodide		74-88-4	260	261	T
Methyl isobutyl carbinol		108-11-2	310	312	nt
Methyl isobutyl ketone		108-10-1	390	391	T
Methyl isocyanate		624-83-9	210	211	T
Methyl mercaptan		74-93-1	500	501	T
N-Methyl methacrylamide		3887-02-3	130	135	nt
Methyl methacrylate		80-62-6	220	223	T
Methyl parathion		298-00-0	460	462	nt
2-Methyl-1,5-pentanedinitrile	Methylglutaronitrile	4553-62-2	430	431	T
4-Methyl-2-pentanone	Methyl isobutyl ketone	108-10-1	390	391	T
2-Methyl-1,3-propanediol		2163-42-0	310	314	nt
2-Methyl-2-propanethiol		75-66-1	500	501	nt
2-Methyl-1-propanol	Isobutanol	78-83-1	310	311	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
2-Methylpropenoic acid	Methacrylic acid	79-41-4	100	102	T
2-Methyl pyridine	2-Picoline	109-06-8	270	271	T
n-Methyl-2-pyrrolidone		872-50-4	130	132	T
Methyl salicylate		119-36-8	220	226	T
Methylstyrene		25013-15-4	290	292	nt
Methyl sulfate		75-93-4	500	507	nt
Methyl sulfide	Dimethyl sulfide	75-18-3	500	502	T
Methyl sulfoxide	Dimethyl sulfoxide	67-68-5	500	503	T
Methyl trichlorosilane		75-79-6	480	480	T
Methyltriglycol		112-35-6	240	245	nt
Mineral oil		8012-95-1	290	291	T
Mineral spirits		64475-85-0	290	291	T
Monoethanolamine	Ethanolamine	141-43-5	140 / 310	141 / 311	T
Monomethylamine	Methylamine	74-89-5	140	141	T
Monomethylhydrazine	Methylhydrazine	60-34-4	280	280	T
Morpholine		110-91-8	140	142	T
MTBE	Methyl-tert-butyl ether	1634-04-4	240	241	T
Muriatic acid	Hydrochloric acid	7647-01-0	370	370	T
Mustard gas	Sulfur mustard	505-60-2	500 / 595	502 / 595	T
Naphtha		8030-30-6	290	291	T
Naphthalene		91-20-3	290	293	T
Naphthylamine		134-32-7	140	145	nt
Nerve gas	Sarin	107-44-8	460 / 595	462 / 595	T
Nickel carbonyl		13463-39-3	470	470	T
Nickel chloride		7718-54-9	340	340	nt
Nickel cyanide		557-19-7	345	345	nt
Nicotine		54-11-5	270	271	T
Nitric acid		7697-37-2	370	370	T
Nitric acid, red fuming		52583-42-3	370	370	T
Nitric oxide		10102-43-9	350	350	T
Nitrobenzene		98-95-3	440	441	T
o-Nitrochlorobenzene		88-73-3	260 / 440	263 / 442	T
p-Nitrochlorobenzene		100-00-5	260 / 440	263 / 442	T
Nitroethane		79-24-3	440	441	nt
Nitrogen dioxide		10102-44-0	350	350	T
Nitrogen tetroxide		10544-72-6	350	350	T
Nitrogen trifluoride		7783-54-2	350	350	T
Nitroglycerine		55-63-0	440	442	nt
Nitromethane		75-52-5	440	441	T
2-Nitrophenol		88-75-5	310 / 440	316 / 442	T
1-Nitropropane		108-03-2	440	441	nt
2-Nitropropane		79-46-9	440	441	T
Nitrosyl chloride		2696-92-6	350	350	nt
Nitrotoluene, mixture		1321-12-6	440	442	nt
m-Nitrotoluene		99-08-1	440	442	nt
o-Nitrotoluene		88-72-2	440	442	T
p-Nitrotoluene		99-99-0	440	442	T
Nitrous oxide		10024-97-2	350	350	T

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Nonylamine		112-20-9	140	141	nt
n-Nonyl phenol		25154-52-3	310	316	nt
n-Octane		111-65-9	290	291	T
Octanoic acid		124-07-2	100	102	nt
1-Octanol		111-87-5	310	311	nt
n-Octanol		111-87-5	310	311	nt
n-Octylamine		111-86-4	140	141	nt
Oleic acid		112-80-1	100	102	nt
Oleum		8014-95-7	370	370	T
Organo-Tin Paint		mixture	470	470	nt
Orthoarsenic acid		1303-28-2	365	365	nt
Otto Fuel II		106602-80-6	590	590	nt
Oxalic acid		144-62-7	100	104	T
Oxalic acid dihydrate		6153-56-6	100	104	nt
Oxamyl		23135-22-0	130	137	nt
Oxybismethane	Dimethyl ether	115-10-6	240	241	T
4,4'-Oxydianiline		101-80-4	140	149	nt
Palmitic acid		57-10-3	100	102	nt
Parabromofluorobenzene	4-Bromofluorobenzene	460-00-4	260	263	T
Parachlorobenzotrchloride	4-Benzotrchloride	5216-25-1	260	263	nt
Parachlorobenzotrifluoride	4-Clorobenzotrifluoride	98-56-6	260	263	nt
Paraformaldehyde		30525-89-4	120	121	nt
Paraldehyde		123-63-7	120	121	nt
Paraphenylene diisocyanate (PPDI) crude		104-49-4	210	212	T
Parathion	Ethyl parathion	56-38-2	460	462	T
PCB		11097-69-1	260	263	T
Pentachloroethane		76-01-7	260	261	nt
Pentachlorophenol		87-86-5	310	316	T
1,3-Pentadiene		504-60-9	290	296	nt
1,5-Pentanediamine		462-94-2	140	148	nt
2-Pentanol		6032-29-7	310	312	nt
n-Pentanol		71-41-0	310	311	nt
2-Pentenenitrile		25899-50-7	430	431	nt
cis-2-Pentenenitrile		13284-42-9	430	431	T
3-Pentenenitrile		4635-87-4	430	431	T
Perchloric acid		7601-90-3	370	370	T
Perchloroethylene	1,1,2,2-Tetrachloroethylene	127-18-4	260	264	T
Perclene	1,1,2,2-Tetrachloroethylene	127-18-4	260	261	T
Peroxyacetic acid		79-21-0	300	300	nt
Petroleum distillate	JP-8 jet fuel	94114-58-6	290	291	T
Petroleum ether	VM&P Naphtha	8030-32-4	290	291	T
Petroleum spirits	Mineral spirits	64475-85-0	290	291	T
Phenanthrene		85-01-8	290	293	nt
Phenanthrin		85-01-8	290	293	nt
Phenol		108-95-2	310	316	T
Phenyl bromide		108-86-1	260	263	nt
m-Phenylenediamine		108-45-2	140	149	nt
Phenethyl alcohol		60-12-8	310	318	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
a-Phenylethyl alcohol		98-85-1	310	318	T
Phenylethylene	Styrene	100-42-5	290	292	T
Phenyl glycidyl ether		122-60-1	270	275	T
Phenyl hydrazine		100-63-0	280	280	nt
Phenyl hydroxide	Phenol	108-95-2	310	316	T
Phenyl isocyanate		103-71-9	210	212	nt
Phenyl mercaptan		108-98-5	500	501	T
Phenyl trichlorosilane	Trichlorophenylsilane	98-13-5	480	480	T
Phosgene		75-44-5	350	350	T
Phosphine		7803-51-2	350	350	T
Phosphoric acid		7664-38-2	370	370	T
Phosphoric anhydride		1314-56-3	370	370	nt
Phosphorus oxychloride		10025-87-3	360	360	T
Phosphorus pentoxide		1314-56-3	370	370	nt
Phosphorus trichloride		7719-12-2	360	360	T
Phosphoryl chloride	Phosphorus oxychloride	10025-87-3	360	360	T
2-Picoline		109-06-8	270	271	T
3-Picoline		108-99-6	270	271	T
alpha-Picoline	2-Picoline	109-06-8	270	271	T
Picric acid		88-89-1	310 / 440	316 / 440	nt
Piperazine		110-85-0	270	274	nt
Piperidine		110-89-4	270	274	nt
Polychlorinated biphenyls	PCB	11097-69-1	260	263	T
Polymethylene polyphenylpolyisocyanate		9106-87-9	210	212	T
Potash	Potassium carbonate	584-08-7	340	340	nt
Potassium acetate		127-08-2	340	340	T
Potassium binoxalate	Potassium acetate	127-08-2	340	340	T
Potassium carbonate		584-08-7	340	340	nt
Potassium chloride		3811-04-9	340	340	nt
Potassium chromate		7789-00-6	340	340	T
Potassium cyanide		151-50-8	345	345	T
Potassium fluoride		7789-23-3	340	340	nt
Potassium hydroxide		1310-58-3	380	380	T
Potassium oxalate		583-52-8	340	340	nt
Potassium permanganate		7722-64-7	340	340	T
Potassium persulfate		7727-21-1	340	340	nt
PPDI	Paraphenylene diisocyanate	104-49-4	210	212	T
Propane		74-98-6	290	291	nt
n-Propanol		71-23-8	310	311	nt
Propanoyl chloride		79-03-8	110	111	nt
2-Propenamide	Acrylamide	79-06-1	130	135	T
2-Propenoic acid	Acrylic acid	79-10-7	100	102	T
Propionaldehyde		123-38-6	120	121	nt
Propionic acid		79-09-4	100	102	nt
Propionic anhydride		123-62-6	160	161	nt
Propionyl chloride		79-03-8	110	111	nt
2-Propoxyethanol		2807-30-9	240	245	nt
Propyl acetate		109-60-4	220	222	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
n-Propyl alcohol	n-Propanol	71-23-8	310	311	nt
n-Propylamine		107-10-8	140	141	nt
Propyl Cellosolve®		2807-30-9	240	245	T
Propyl chloride		540-54-5	260	261	nt
Propylene chloride	Propylene dichloride	78-87-5	260	261	T
Propylene diamine		78-90-0	140	148	nt
Propylene dichloride		78-87-5	260	261	T
Propylene glycol		57-55-6	310	314	nt
Propyleneimine		75-55-8	270	274	nt
1,2-Propylene oxide		75-56-9	270	275	T
Propyl methacrylate		2210-28-8	220	223	nt
Prussic acid	Hydrogen cyanide liquid	74-90-8	345 / 470	345 / 470	T
Pyrene		129-00-0	290	293	nt
Pyridine		110-86-1	270	271	T
Pyromucic aldehyde	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T
Pyrrole		109-97-7	270	274	nt
Pyrrolidine		123-75-1	270	274	T
Quick silver	Mercury	7439-97-6	330	330	T
Quinoline		91-22-5	270	274	nt
Red fuming nitric acid	Nitric acid, red fuming	7697-37-2	370	370	T
Resorcinol		108-46-3	310	316	nt
Sarin		107-44-8	460 / 595	462 / 595	T
Selenious acid		7783-00-8	370	370	nt
Silane		7803-62-5	480	480	T
Silicon tetrachloride		10026-04-7	360 / 480	360 / 480	T
Silicon tetrahydride	Silane	7803-62-5	480	480	T
Skydrol®		95660-51-8	460	462	nt
Sodium-t-amylate / t-amyl alcohol		mixture	590	590	T
Sodium arsenite		15120-17-9	340	340	nt
Sodium bicarbonate		144-55-8	340	340	nt
Sodium bisulfite		7631-90-5	340	340	nt
Sodium carbonate		497-19-8	340	340	nt
Sodium chloride		7647-14-5	340	340	nt
Sodium cyanide		143-33-9	345	345	T
Sodium dichromate		10588-01-9	340	340	nt
Sodium fluoride		7681-49-4	340	340	T
Sodium hydrosulfide		16721-80-5	340	340	nt
Sodium hydroxide		1310-73-2	380	380	T
Sodium hypochlorite		7681-52-9	340	340	T
Sodium methylate		124-41-4	550	550	T
Sodium persulfate		7775-27-1	340	340	nt
Sodium phosphate		7601-54-9	340	340	nt
Sodium sulfate		7757-82-6	340	340	nt
Sodium sulfide		1313-82-2	340	340	nt
Sodium sulfite		7757-83-7	340	340	nt
Soman (GD)		96-64-0	460 / 595	462 / 595	T
Stearic acid		57-11-4	100	102	nt
Stoddard solvent		8052-41-3	290	291	T

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Styrene		100-42-5	290	292	T
Sulfinyl chloride	Thionyl chloride	7719-09-7	360	360	T
Sulfonyl chloride	Sulfuryl chloride	7791-25-5	350 / 360	350 / 360	T
Sulfur chloride	Sulfur dichloride	10545-99-0	500	502	T
Sulfur dichloride		10545-99-0	500	502	T
Sulfur dioxide		7446-09-5	350 / 365	350 / 365	T
Sulfur hexafluoride		2551-62-4	350 / 500	350 / 509	T
Sulfuric acid		7664-93-9	370	370	T
Sulfuric acid, fuming	Oleum	8014-95-7	370	370	T
Sulfur monochloride	Disulfur dichloride	10025-67-9	500	502	T
Sulfur mustard (HD) chemical agent		505-60-2	500 / 595	502 / 595	T
Sulfurous acid		7782-99-2	370	370	nt
Sulfurous anhydride	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T
Sulfurous chloride	Thionyl chloride	7719-09-7	360	360	T
Sulfurous oxide	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T
Sulfurous oxychloride	Thionyl chloride	7719-09-7	360	360	T
Sulfur oxide	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T
Sulfur trioxide		7446-11-9	365	365	T
Sulfuryl chloride		7791-25-5	350 / 360	350 / 360	T
Tabun		77-81-6	460 / 595	462 / 595	T
Tannic acid		1401-55-4	310	316	nt
TDI	Toluene-1,3-diisocyanate	26471-62-5	210	212	T
Terephthalic acid methyl ester		120-61-6	220	226	nt
1,1,2,2-Tetrabromoethane		79-27-6	260	261	T
2,2', 6,6'-Tetrachlorobisphenol A		79-95-8	260 / 310	263 / 316	T
1,1,1,2-Tetrachloroethane		630-20-6	260	261	nt
1,1,2,2-Tetrachloroethane		79-34-5	260	261	T
1,1,2,2-Tetrachloroethylene		127-18-4	260	264	T
Tetraethoxysilane		78-10-4	480	480	T
Tetraethylene pentamine		112-57-2	140	148	nt
Tetraethyl lead		78-00-2	470	470	T
1,1,1,2-Tetrafluoroethane		811-97-2	260	261	T
Tetrafluoroethylene		116-14-3	260	264	nt
Tetrafluoromethane		75-73-0	260	261	T
Tetrahydrofuran		109-99-9	240	241	T
Tetralone		529-34-0	290	292	nt
N,N,N,N'-Tetramethyl-ethylenediamine		110-18-9	140	148	nt
Tetramethyltin in n-pentane		Mixture	590	590	T
1,1'-Thiobis (2-chloroethane)	Sulfur mustard	505-60-2	500 / 595	502 / 595	T
Thioglycolic acid		68-11-1	100 / 500	103 / 501	T
Thionyl chloride		7719-09-7	360	360	T
Thiophenol	Phenyl mercaptan	108-98-5	500	501	T
Thiopropene	Dimethyl sulfide	75-18-3	500	502	T
Thioxamyl	Oxamyl	23135-22-0	130	137	nt
Titanium chloride	Titanium tetrachloride	7550-45-0	360	360	T
Titanium dioxide		13463-67-7	380	380	nt
Titanium tetrachloride		7550-45-0	360	360	T
TNT		118-96-7	440	442	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Toluene		108-88-3	290	292	T
Toluene 80%, Dichlorotriazine 20%		mixture	260	263	nt
Toluene-1,3-diisocyanate		26471-62-5	210	212	T
Toluene-2,4-diisocyanate		584-84-9	210	212	T
p-Toluenesulfonic acid monohydrate		6192-52-5	500	504	nt
o-Toluenethiol		137-06-4	500	501	nt
m-Toluidine		108-44-1	140	145	T
o-Toluidine		95-53-4	140	145	T
Tolyl glycidyl ether		26447-14-3	270	275	nt
2-Tolyl mercaptan		137-06-4	500	501	nt
Triallylamine		102-70-5	140	143	nt
Tribromomethane		75-25-2	260	261	nt
Tribromophenol		118-79-6	310	316	nt
Tributylamine		102-82-9	140	143	nt
Tributyltin oxide		56-35-9	470	470	nt
Trichloroacetaldehyde		75-87-6	120	121	nt
Trichloroacetic acid		76-03-9	100	103	T
1,1,1-Trichloroacetone	Trichloroacetic acid	76-03-9	100	103	T
1,1,3-Trichloroacetone		921-03-9	260 / 390	261 / 391	T
Trichloroacetonitrile		545-06-2	430	431	nt
1,2,4-Trichlorobenzene		120-82-1	260	263	T
1,1,1-Trichloroethane		71-55-6	260	261	T
1,1,2-Trichloroethane		79-00-5	260	261	T
2,2,2-Trichloroethanol		115-20-8	310	315	T
Trichloroethylene		79-01-6	260	264	T
Trichlorofluoromethane		75-69-4	260	261	nt
Trichloroisocyanuric acid		87-90-1	270	274	nt
Trichloromethane	Chloroform	67-66-3	260	261	T
Trichloromethanethiol		75-70-7	500	501	nt
Trichloromethyl benzene	Benzotrichloride	98-07-7	260	263	nt
Trichloromethyl silane	Methyl trichlorosilane	75-79-6	480	480	T
Trichlorophenylsilane		98-13-5	480	480	T
1,2,3-Trichloropropane		96-18-4	260	261	nt
1,1,3-Trichloro-2-propanone	1,1,3-Trichloroacetone	921-03-9	260	261	T
Trichlorosilane		10025-78-2	480	480	T
1,1,2-Trichloro-1,2,2-trifluoroethane		76-13-1	260	261	T
Trichlorovinylsilane		75-94-5	480	480	T
Triclene	Trichloroethylene	79-01-6	260	264	T
Tricresyl phosphate	Tritolyl phosphate	1330-78-5	460	462	nt
Triethanolamine		102-71-6	140	143	nt
Triethoxysilane		998-30-1	480	480	T
Triethyl aluminum		97-93-8	470	470	nt
Triethylamine		121-44-8	140	143	T
Triethylenetetramine		112-24-3	140	149	nt
Trifluoroacetic acid		76-05-1	100	103	T
Trifluoroacetyl chloride		354-32-5	110	111	T
2,2,2-Trifluoroethanol		75-89-8	310	315	T
Trifluoromethane		75-46-7	260	261	T

**CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms**

Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub Class	T or nt
Trifluoromethane sulfonic acid		1493-13-6	500	504	T
Trimethylamine gas		75-50-3	140	143	T
1,2,4-Trimethylbenzene		95-63-6	290	292	nt
1,2,3-Trimethylbenzene		526-73-8	290	292	nt
Trimethylcyclohexane		98-55-5	290	291	nt
3,5,5-Trimethyl cyclohexanol		116-02-9	310	312	nt
2,2,4-Trimethylpentane		540-84-1	140	142	nt
Trimethyl phosphate		512-56-1	460	462	T
Trimethyl phosphite		121-45-9	460	462	T
2,4,6-Trinitrophenol		88-89-1	310 / 440	316 / 440	nt
2,4,6-Trinitrotoluene		118-96-7	440	442	nt
Trioctyl phosphate		25103-12-2	460	462	nt
Triphenyl phosphite		101-02-0	460	462	nt
Tripropylamine		102-69-2	140	146	nt
Tritolyl phosphate		1330-78-5	460	462	nt
Tungsten hexafluoride		7783-82-6	350	350	T
Turpentine		8006-64-2	290	294	nt
Vinyl acetate		108-05-4	220	222	T
Vinylbenzene	Styrene	100-42-5	290	292	T
Vinyl bromide		593-60-2	260	264	nt
Vinyl chloride		75-01-4	260	264	T
4-Vinyl-1-cyclohexene		100-40-3	290	294	nt
Vinyl fluoride		75-02-5	260	264	nt
Vinylidene chloride		75-35-4	260	264	T
Vinylmagnesium chloride		3536-96-7	470	470	T
4-Vinyl pyridine		100-43-6	270	271	T
N-Vinylpyrrolidone		88-12-0	130	132	nt
Vinyl trichlorosilane	Trichlorovinylsilane	75-94-5	480	480	T
VM and P naphtha		8032-32-4	290	291	T
VX Nerve Agent		50782-69-9	460 / 595	462 / 595	T
Vydate	Oxamyl	23135-22-0	130	137	nt
Water		7732-18-5	590	590	nt
White liquor		68131-33-9	590	590	T
Wood alcohol	Methanol	67-56-1	310	311	T
Wood ether	Dimethyl ether	115-10-6	240	241	T
o-Xylene		95-47-6	290	292	nt
Xylene, mixed isomers		1330-20-7	290	292	T
Xylenol		1300-71-6	310	316	nt
Xylidine		1300-73-8	140	145	nt
Yperite	Sulfur mustard	505-60-2	500 / 595	502 / 595	T
Zinc chromate		13530-65-9	340	340	nt
Zinc cyanide		557-21-1	345	345	nt

**Chemical Index by Chemical Abstract System (CAS) Number**

The Permeation Data Table shows test results for certain tested (**T**) chemicals in associated subclasses as defined in ASTM F1186. For chemicals not tested (**nt**), the chemical subclass number is provided so users may view test results for tested chemicals in that subclass. Prediction of chemical resistance of a material from data on other chemicals has not been successful. However, when data is unavailable, information on related chemicals within a sub-class may at least rank alternative chemical protective materials as to their probable chemical resistance.

CAS Number	Index Name	Class	Sub-Class	T or nt
50-00-0	Formaldehyde	120	121	T
50-21-5	Lactic acid	100	103	nt
50-32-8	Benzo[a]pyrene	290	292 / 293	T
51-79-6	Ethyl carbamate	230	233	nt
54-11-5	Nicotine	270	271	T
55-63-0	Nitroglycerine	440	442	nt
56-23-5	Carbon tetrachloride	260	261	T
56-35-9	Bis(tributyltin)oxide	470	470	nt
56-38-2	Ethyl parathion	460	462	T
56-55-3	1,2-Benzanthracene	290	293	nt
56-81-5	Glycerine	310	314	nt
57-10-3	Palmitic acid	100	102	nt
57-11-4	Stearic acid	100	102	nt
57-14-7	1,1-Dimethylhydrazine	280	280	T
57-55-6	Propylene glycol	310	314	nt
57-74-9	Chlordane	260	261	T
58-89-9	Lindane	260	261	T
59-50-7	4-Chloro-m-cresol	260 / 310	263 / 316	nt
60-12-8	Phenethyl alcohol	310	318	nt
60-29-7	Ethyl ether	240	241	T
60-33-3	Linoleic acid	100	102	nt
60-34-4	Methylhydrazine	280	280	T
60-35-5	Acetamide	130	132	nt
62-50-0	Ethyl methanesulfonate	500	507	nt
62-53-3	Aniline	140	145	T
62-75-9	Dimethyl nitrosamine	450	450	T
64-17-5	Ethanol	310	311	nt
64-18-6	Formic acid	100	102	T
64-19-7	Acetic acid	100	102	T
64-67-5	Diethyl sulfate	500	507	T
66-25-1	1-Hexanal	120	121	nt
67-56-1	Methanol	310	311	T
67-63-0	Isopropanol	310	312	T
67-64-1	Acetone	390	391	T
67-66-3	Chloroform	260	261	T
67-68-5	Dimethyl sulfoxide	500	503	T
67-72-1	Carbon hexachloride	260	261	nt
68-11-1	Thioglycolic acid	100 / 500	103 / 501	T
68-12-2	N,N-Dimethylformamide	130	132	T
71-23-8	n-Propanol	310	311	nt
71-36-3	n-Butanol	310	311	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
71-41-0	n-Pentanol	310	311	nt
71-43-2	Benzene	290	292	T
71-55-6	1,1,1-Trichloroethane	260	261	T
74-82-8	Methane	290	291	nt
74-83-9	Methyl bromide	260	261	T
74-85-1	Ethylene	290	294	nt
74-87-3	Methyl chloride	260	261	T
74-88-4	Methyl iodide	260	261	T
74-89-5	Methylamine	140	141	T
74-90-8	Hydrogen cyanide gas	345 / 350	345 / 350	T
74-90-8	Hydrogen cyanide liquid	345 / 370	345 / 370	T
74-93-1	Methyl mercaptan	500	501	T
74-95-3	Methylene bromide	260	261	nt
74-97-5	Bromochloromethane	260	261	nt
74-98-6	Propane	290	291	nt
75-00-3	Ethyl chloride	260	261	T
75-01-4	Vinyl chloride	260	264	T
75-02-5	Vinyl fluoride	260	264	nt
75-03-6	Ethyl iodide	260	261	nt
75-04-7	Ethylamine	140	141	T
75-05-8	Acetonitrile	430	431	T
75-07-0	Acetaldehyde	120	121	T
75-08-1	Ethyl mercaptan	500	501	nt
75-09-2	Dichloromethane	260	261	T
75-12-7	Formamide	130	132	nt
75-15-0	Carbon disulfide	500	502	T
75-18-3	Dimethyl sulfide	500	502	T
75-21-8	Ethylene oxide	270	275	T
75-25-2	Tribromomethane	260	261	nt
75-28-5	Isobutane	290	291	nt
75-29-6	Isopropyl chloride	260	261	nt
75-31-0	Isopropylamine	140	141	T
75-34-3	1,1-Dichloroethane	260	261	nt
75-35-4	Vinylidene chloride	260	264	T
75-36-5	Acetyl chloride	110	111	T
75-44-5	Phosgene	350	350	T
75-46-7	Trifluoromethane	260	261	T
75-50-3	Trimethylamine gas	140	143	T
75-52-5	Nitromethane	440	441	T
75-55-8	Propyleneimine	270	274	nt
75-56-9	1,2-Propylene oxide	270	275	T
75-64-9	tert-Butylamine	140	141	T
75-65-0	tert-Butyl alcohol	310	313	nt
75-66-1	t-Butyl mercaptan	500	501	nt
75-66-1	2-Methyl-2-propanethiol	500	501	nt
75-69-4	Trichlorofluoromethane	260	261	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
75-70-7	Trichloromethanethiol	500	501	nt
75-73-0	Tetrafluoromethane	260	261	T
75-75-2	Methanesulfonic acid	500	504	T
75-78-5	Dimethyldichlorosilane	480	480	T
75-79-6	Methyl trichlorosilane	480	480	T
75-86-5	Acetone cyanohydrin	310 / 430	313 / 431	T
75-87-6	Trichloroacetaldehyde	120	121	nt
75-89-8	2,2,2-Trifluoroethanol	310	315	T
75-93-4	Methyl sulfate	500	507	nt
75-94-5	Trichlorovinylsilane	480	480	T
76-01-7	Pentachloroethane	260	261	nt
76-03-9	Trichloroacetic acid	100	103	T
76-05-1	Trifluoroacetic acid	100	103	T
76-06-2	Chloropicrin	260	261	nt
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	260	261	T
76-16-4	Hexafluoroethane	260	261	T
77-47-4	Hexachlorocyclopentadiene	260	264	nt
77-78-1	Dimethyl sulfate	500	507	T
77-81-6	Tabun	460 / 595	462 / 595	T
77-92-9	Citric acid	100	104	nt
78-00-2	Tetraethyl lead	470	470	T
78-10-4	Tetraethoxysilane	480	480	T
78-59-1	Isophorone	390	391	nt
78-78-4	Isopentane	290	291	nt
78-79-5	Isoprene	290	296	nt
78-81-9	Isobutylamine	140	141	nt
78-83-1	Isobutanol	310	311	nt
78-84-2	Isobutyraldehyde	120	121	nt
78-87-5	Propylene dichloride	260	261	T
78-88-6	2,3-Dichloropropene	260	261	T
78-90-0	Propylene diamine	140	148	nt
78-92-2	sec-Butyl alcohol	310	312	nt
78-93-3	Methyl ethyl ketone	390	391	T
78-95-5	Chloroacetone	390	391	T
79-00-5	1,1,2-Trichloroethane	260	261	T
79-01-6	Trichloroethylene	260	264	T
79-03-8	Propanoyl chloride	110	111	nt
79-04-9	Chloroacetyl chloride	110	111	T
79-06-1	Acrylamide	130	135	T
79-09-4	Propionic acid	100	102	nt
79-10-7	Acrylic acid	100	102	T
79-11-8	Chloroacetic acid	100	103	T
79-14-1	Glycolic acid	100	103	T
79-20-9	Methyl acetate	220	222	nt
79-21-0	Peroxyacetic acid	300	300	nt
79-22-1	Methyl chloroformate	110	113	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
79-24-3	Nitroethane	440	441	nt
79-27-6	1,1,2,2-Tetrabromoethane	260	261	nt
79-34-5	1,1,1,2-Tetrachloroethane	260	261	T
79-36-7	Dichloroacetyl chloride	110	111	T
79-39-0	Methacrylamide	130	135	nt
79-41-4	Methacrylic acid	100	102	T
79-43-6	Dichloroacetic acid	100	103	nt
79-46-9	2-Nitropropane	440	441	T
79-95-8	2,2', 6,6'-Tetrachlorobisphenol A	260 / 310	263 / 316	T
80-05-7	4,4'-Isopropylidene diphenol	310	316	nt
80-43-3	Cumene peroxide	300	300	nt
80-62-6	Methyl methacrylate	220	223	nt
84-66-2	Diethyl phthalate	220	226	nt
84-69-5	Diisobutyl phthalate	220	226	nt
84-74-2	n-Butyl phthalate	220	226	nt
85-01-8	Phenanthrene	290	293	nt
85-68-7	Butyl benzyl phthalate	220	226	nt
86-73-7	Fluorene	290	293	nt
87-68-3	Hexachlorobutadiene	260	264	T
87-86-5	Pentachlorophenol	310	316	T
87-90-1	Trichloroisocyanuric acid	270	274	nt
88-12-0	N-Vinylpyrrolidone	130	132	nt
88-72-2	o-Nitrotoluene	440	442	T
88-73-3	o-Nitrochlorobenzene	260 / 440	263 / 442	T
88-75-5	2-Nitrophenol	310 / 440	316 / 442	T
88-89-1	2,4,6-Trinitrophenol	310 / 440	316 / 440	nt
89-72-5	o-sec-Butylphenol	310	316	nt
90-00-6	Ethylphenol	310	316	nt
91-17-8	Decahydronaphthalene	290	291	nt
91-20-3	Naphthalene	290	293	T
91-22-5	Quinoline	270	274	nt
91-66-7	Diethylaniline crude	140	146	T
91-67-8	Diethyl-m-toluidine crude	140	145	T
91-94-1	3,3'-Dichlorobenzidine	140 / 260	149 / 263	nt
92-87-5	Benzidine	140	145 / 149	T
93-89-0	Ethyl benzoate	220	226	nt
95-47-6	o-Xylene	290	292	nt
95-48-7	o-Cresol	310	316	T
95-49-8	o-Chlorotoluene	260	263	T
95-50-1	1,2-Dichlorobenzene	260	263	nt
95-51-2	o-Chloroaniline	140	145	nt
95-53-4	o-Toluidine	140	145	T
95-57-8	o-Chlorophenol	260 / 310	263 / 316	nt
95-63-6	1,2,4-Trimethylbenzene	290	292	nt
95-76-1	3,4-Dichloroaniline	140 / 260	145 / 263	T
96-12-8	1,2-Dibromo-3-chloropropane	260	261	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
96-18-4	1,2,3-Trichloropropane	260	261	nt
96-29-7	Methyl ethyl ketoxime	590	590	T
96-33-3	Methyl acrylate	220	223	T
96-34-4	Methyl chloroacetate	220	222	nt
96-48-0	gamma-Butyrolactone	220	225	nt
96-64-0	Soman (GD) Chemical Agent	460 / 595	462 / 595	T
97-63-2	Ethyl methacrylate	220	223	T
97-93-8	Triethylaluminum	470	470	nt
98-00-0	2-Furyl methanol	310	318	nt
98-01-1	2-Furaldehyde	120 / 270	122 / 277	T
98-07-7	Benzotrichloride	260	263	nt
98-09-9	Benzene sulfonyl chloride	500	505	T
98-13-5	Trichlorophenylsilane	480	480	T
98-29-3	4-tert-Butyl catechol	310	316	nt
98-54-4	p-tert-Butylphenol	310	316	nt
98-55-5	Trimethylcyclohexane	290	291	nt
98-56-6	4-Chlorobenzotrifluoride	260	263	nt
98-82-8	Cumene	290	292	T
98-85-1	a-Phenylethyl alcohol	310	318	T
98-86-2	Acetophenone	390	392	nt
98-88-4	Benzoyl chloride	110	112	T
98-95-3	Nitrobenzene	440	441	T
99-08-1	m-Nitrotoluene	440	442	nt
99-99-0	p-Nitrotoluene	440	442	T
100-00-5	p-Nitrochlorobenzene	260 / 440	263 / 442	T
100-07-2	Anisoyl chloride	110 / 240	112 / 243	nt
100-37-8	N,N-Diethylethanolamine	140	143	nt
100-39-0	Benzyl bromide	260	266	nt
100-40-3	4-Vinyl-1-cyclohexene	290	294	nt
100-41-4	Ethyl benzene	290	290	T
100-42-5	Styrene	290	292	T
100-43-6	4-Vinyl pyridine	270	271	T
100-44-7	Benzyl chloride	260	266	T
100-47-0	Benzonitrile	430	432	T
100-51-6	Benzyl alcohol	310	312	T
100-52-7	Benzaldehyde	120	122	nt
100-61-8	N-Methylaniline	140	146	nt
100-63-0	Phenyl hydrazine	280	280	nt
100-97-0	Hexamethylenetriamine	270	274	nt
101-02-0	Triphenyl phosphite	460	462	nt
101-14-4	4,4'-Methylene bis (o-chloroaniline)	140	149	T
101-68-8	4,4'-Diphenyl methane diisocyanate	210	212	T
101-77-9	4,4'-Methylene dianiline	140	145 / 149	T
101-80-4	4,4'-Oxydianiline	140	149	nt
102-69-2	Tripropylamine	140	146	nt
102-70-5	Triallylamine	140	143	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
102-71-6	Triethanolamine	140	143	nt
102-82-9	Tributylamine	140	143	nt
103-11-7	2-Ethylhexyl acrylate	220	223	nt
103-71-9	Phenyl isocyanate	210	212	T
104-49-4	Paraphenylene diisocyanate	210	212	T
104-75-6	2-Ethylhexylamine	140	141	nt
104-76-7	2-Ethylhexanol	310	311	nt
104-90-5	Methyl ethyl pyridine	270	271	nt
105-58-8	Diethyl carbonate	230	233	nt
105-67-9	2,4-Dimethylphenol	310	316	nt
106-20-7	2,2'-Diethyldihexylamine	140	142	nt
106-47-8	p-Chloroaniline	140	145	T
106-48-9	4-Chlorophenol	260 / 310	263 / 316	T
106-63-8	Isobutyl acrylate	220	223	nt
106-88-7	1,2-Butylene oxide	270	275	T
106-89-8	Epichlorohydrin	260 / 270	261 / 275	T
106-92-3	Allyl glycidyl ether	270	275	nt
106-93-4	Ethylene dibromide	260	261	T
106-94-5	1-Bromo propane	310	315	nt
106-95-6	Allyl bromide	260	265	nt
106-97-8	n-Butane	290	291	nt
106-98-9	Butene	290	294	nt
106-99-0	1,3-Butadiene	290	296	T
107-02-8	Acrolein	120	121	T
107-05-1	Allyl chloride	260	265	T
107-06-2	1,2-Dichloroethane	260	261	T
107-07-3	2-Chloroethanol	260 / 310	261 / 315	T
107-10-8	n-Propylamine	140	141	nt
107-11-9	Allylamine	140	141	nt
107-12-0	Ethyl cyanide	345	345	nt
107-13-1	Acrylonitrile	430	431	T
107-14-2	Chloroacetonitrile	260 / 430	261 / 431	nt
107-15-3	Ethylenediamine	140	148	T
107-18-6	Allyl alcohol	310	311	T
107-20-0	2-Chloroacetaldehyde	120 / 260	121 / 261	nt
107-21-1	Ethylene glycol	310	314	T
107-30-2	Chloromethyl methyl ether	240	241	T
107-31-3	Methyl formate	220	221	nt
107-44-8	Sarin	460 / 595	462 / 595	T
107-88-0	1,3-Butylene glycol	310	314	nt
107-92-6	n-Butyric acid	100	102	T
107-98-2	1-Methoxy-2-propanol	240	245	nt
108-01-0	2-Dimethyl aminoethanol	140	143	nt
108-03-2	1-Nitropropane	440	441	nt
108-05-4	Vinyl acetate	220	222	T
108-09-8	1,3-Dimethyl butylamine	140	143	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
108-10-1	Methyl isobutyl ketone	390	391	T
108-11-2	Methyl isobutyl carbinol	310	312	nt
108-18-9	Diisopropylamine	140	142	nt
108-20-3	Isopropyl ether	240	241	nt
108-21-4	Isopropyl acetate	220	222	nt
108-24-7	Acetic anhydride	160	161	T
108-31-6	Maleic anhydride	160	161	nt
108-39-4	m-Cresol	310	316	nt
108-43-0	3-Chlorophenol	260 / 310	263 / 316	nt
108-44-1	m-Toluidine	140	145	T
108-45-2	m-Phenylenediamine	140	149	nt
108-46-3	1,3-Benzenediol	310	316	nt
108-60-1	Dichloroisopropyl ether	240 / 260	241 / 261	nt
108-77-0	Cyanuric chloride	260 / 270	263 / 274	T
108-83-8	Diisobutyl ketone	390	391	nt
108-86-1	Phenyl bromide	260	263	nt
108-88-3	Toluene	290	292	T
108-90-7	Chlorobenzene	260	263	T
108-91-8	Cyclohexylamine	140	141	nt
108-93-0	Cyclohexanol	310	312	nt
108-94-1	Cyclohexanone	390	391	T
108-95-2	Phenol	310	316	T
108-98-5	Phenyl mercaptan	500	501	T
108-99-6	3-Picoline	270	271	T
109-06-8	2-Picoline	270	271	T
109-55-7	3-Dimethyl aminopropylamine	140	148	nt
109-60-4	Propyl acetate	220	222	nt
109-63-7	Boron trifluoride etherate	590	590	T
109-69-3	n-Butyl chloride	260	261	nt
109-73-9	n-Butylamine	140	141	T
109-79-5	n-Butyl mercaptan	500	501	nt
109-83-1	N-Methylethanolamine	140	142	nt
109-86-4	Methyl Cellosolve®	240	245	T
109-89-7	Diethylamine	140	142	T
109-92-2	Ethyl vinyl ether	240 / 260	246 / 261	nt
109-97-7	Pyrrole	270	274	nt
109-99-9	Tetrahydrofuran	240	241	T
110-00-9	Furan	270	277	nt
110-16-7	Maleic acid	100	104	nt
110-18-9	N,N,N,N'-Tetramethyl ethylenediamine	140	148	nt
110-49-6	Methyl Cellosolve® acetate	240	245	T
110-51-0	Borane pyridine complex	590	590	nt
110-52-1	1,4-Dibromobutane	260	261	nt
110-54-3	n-Hexane	290	291	T
110-57-6	trans-1,4-Dichloro-2-butene	260	264	T
110-63-4	1,4-Butanediol	310	314	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
110-75-8	2-Chloroethyl vinyl ether	240 / 260	241 / 261	nt
110-80-5	Ethyl Cellosolve®	240	245	T
110-82-7	Cyclohexane	290	291	T
110-85-0	1,4-Diethylenediamine	270	274	nt
110-86-1	Pyridine	270	271	T
110-89-4	Piperidine	270	274	nt
110-91-8	Morpholine	140	142	T
111-15-9	Ethyl Cellosolve® acetate	240	245	T
111-27-3	Hexyl alcohol	310	311	nt
111-30-8	Glutaraldehyde	120	121	T
111-40-0	Diethylenetriamine	140	148	T
111-42-2	Diethanolamine	140	142	nt
111-44-4	Dichloroethyl ether	240 / 260	241 / 261	T
111-46-6	Diethylene glycol	310	314	nt
111-55-7	Ethylene glycol diacetate	220	222	nt
111-65-9	n-Octane	290	291	T
111-69-3	Adiponitrile	430	431	T
111-76-2	Butyl Cellosolve®	240	245	T
111-77-3	Diethylene glycol monomethyl ether	240	245	nt
111-86-4	n-Octylamine	140	141	nt
111-87-5	n-Octanol	310	311	nt
111-90-0	Ethylene diglycol monoethyl ether	240	245	T
111-92-2	Di-n-butylamine	140	142	nt
112-07-2	Butyl Cellosolve® acetate	240	245	nt
112-20-9	Nonylamine	140	141	nt
112-24-3	Triethylenetetramine	140	149	nt
112-31-2	n-Decyl aldehyde	120	121	nt
112-34-5	n-Butyl Carbitol®	240	245	nt
112-35-6	Methyltriglycol	240	245	nt
112-52-7	Chlorododecane	260	261	nt
112-57-2	Tetraethylene pentamine	140	148	nt
112-80-1	Oleic acid	100	102	nt
115-10-6	Dimethyl ether	240	241	T
115-20-8	2,2,2-Trichloroethanol	310	315	T
116-02-9	3,5,5-Trimethyl cyclohexanol	310	312	nt
116-14-3	Tetrafluoroethylene	260	264	nt
117-81-7	Di (2-ethylhexyl) phthalate	220	226	T
117-84-0	Di-n-octyl phthalate	220	226	nt
118-74-1	Hexachlorobenzene	260	263	nt
118-79-6	Tribromophenol	310	316	nt
118-96-7	2,4,6-Trinitrotoluene	440	442	nt
119-36-8	Methyl salicylate	220	226	T
120-12-7	Anthracene	290	293	T
120-51-4	Benzyl benzoate	220	226	nt
120-61-6	Dimethyl terephthalate	220	226	nt
120-82-1	1,2,4-Trichlorobenzene	260	263	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
120-83-2	2,4-Dichlorophenol	260 / 310	263 / 316	nt
121-44-8	Triethylamine	140	143	T
121-45-9	Trimethyl phosphite	460	462	T
121-69-7	N,N-Dimethylaniline	140	146	T
121-75-5	Malathion	460	462	T
122-39-4	Diphenylamine	140	146	nt
122-60-1	Phenyl glycidyl ether	270	275	T
122-66-7	Hydrazobenzene	280	280	nt
123-05-7	Ethyl hexaldehyde	120	121	nt
123-31-9	Hydroquinone	310	316	nt
123-38-6	Propionaldehyde	120	121	nt
123-51-3	Isoamyl alcohol	310	312	T
123-62-6	Propionic anhydride	160	161	nt
123-63-7	Paraldehyde	120	121	nt
123-72-8	n-Butyraldehyde	120	121	T
123-73-9	trans-Crotonaldehyde	120	121	nt
123-75-1	Pyrrolidine	270	274	T
123-86-4	n-Butyl acetate	220	222	T
123-91-1	1,4-Dioxane	270	278	T
124-02-7	Diallylamine	140	142	nt
124-04-9	Adipic acid	100	104	nt
124-07-2	Octanoic acid	100	102	nt
124-09-4	Hexamethylene diamine	140	148	T
124-18-5	Decane	290	291	nt
124-40-3	Dimethylamine	140	142	T
124-41-4	Sodium methylate	550	550	T
126-98-7	Methacrylonitrile	430	431	nt
126-99-8	2-Chloro-1,3-butadiene	260	264	nt
127-00-4	1-Chloro-2-propanol	260 / 310	261 / 315	nt
127-08-2	Potassium acetate	340	340	T
127-18-4	1,1,2,2-Tetrachloroethylene	260	264	T
127-19-5	N,N-Dimethylacetamide	130	132	T
129-00-0	Benzophenanthrene	290	293	nt
131-11-3	Dimethyl phthalate	220	226	nt
134-32-7	Naphthylamine	140	145	nt
136-60-7	n-Butyl benzoate	220	226	nt
137-06-4	2-Tolyl mercaptan	500	501	nt
138-86-3	Dipentene	290	296	nt
140-11-4	Benzyl acetate	220	222	nt
140-88-5	Ethyl acrylate	220	223	T
141-32-2	n-Butyl acrylate	220	223	T
141-43-5	Ethanolamine	140 / 310	141 / 311	T
141-78-6	Ethyl acetate	220	222	T
141-79-7	Mesityl oxide	390	391	nt
141-91-3	Dimethylmorpholine	140	142	nt
141-97-9	Ethyl acetoacetate	220	222	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
142-82-5	n-Heptane	290	291	nt
142-84-7	n-Dipropylamine	140	142	nt
142-96-1	n-Butyl ether	240	241	T
143-07-7	Lauric acid	100	102	nt
143-33-9	Sodium cyanide	345	345	T
144-55-8	Sodium bicarbonate	340	340	nt
144-62-7	Oxalic acid	100	104	T
149-57-5	2-Ethylhexanoic acid	100	102	nt
151-50-8	Potassium cyanide	345	345	T
151-56-4	Ethyleneimine	270	274	T
151-67-7	Halothane	260	261	nt
156-60-5	trans-1,2-dichloroethylene	260	261	T
218-01-9	1,2-Benzophenanthrene	290	293	nt
260-94-6	Acridine	290	293	nt
287-92-3	Cyclopentane	290	291	nt
298-00-0	Methyl parathion	460	462	nt
302-01-2	Hydrazine	280	280	T
333-41-5	Diazinon	460	462	T
354-32-5	Trifluoroacetyl chloride	110	111	T
372-09-8	Cyanoacetic acid	100	103	nt
374-07-2	1,1-Dichloro tetrafluoroethane	260	261	T
382-10-5	Hexafluoroisobutylene	260	261	T
420-04-2	Cyanamide	345	345	nt
459-72-3	Ethyl fluoroacetate	220	222	nt
460-00-4	4-Bromofluorobenzene	260	263	T
460-19-5	Cyanogen	345	345	nt
462-06-6	Fluorobenzene	260	263	T
462-94-2	1,5-Pentanediamine	140	148	nt
497-19-8	Sodium carbonate	340	340	nt
501-53-1	Benzyl chloroformate	110	113	nt
504-29-0	2-Aminopyridine	270	271	T
504-60-9	1,3-Pentadiene	290	296	nt
505-60-2	Sulfur mustard (HD) chemical agent	500 / 595	502 / 595	T
506-68-3	Cyanogen bromide	345 / 350	345 / 350	nt
506-77-4	Chlorine cyanide	345	345	nt
506-96-7	Acetyl bromide	110	111	T
512-56-1	Trimethyl phosphate	460	462	T
513-37-1	Dimethylvinyl chloride	260	264	nt
526-73-8	1,2,3-Trimethylbenzene	290	292	nt
529-34-0	Tetralone	290	292	nt
532-27-4	Chloroacetophenone	260 / 390	261 / 392	nt
534-07-6	1,3-Dichloroacetone	260 / 390	261 / 391	T
534-52-1	Dinitro-o-cresol	310 / 440	316 / 442	T
538-93-2	Isobutylbenzene	290	292	nt
540-51-2	2-Bromoethanol	260 / 310	261 / 315	nt
540-54-5	1-Chloropropane	260	261	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
540-59-0	1,2-Dichloroethylene	260	264	nt
540-84-1	2,2,4-Trimethylpentane	140	142	nt
541-25-3	Lewisite (L) Chemical Agent	470 / 595	470 / 595	T
542-56-3	Isobutyl nitrite	430	431	nt
542-59-6	Ethylene glycol monoacetate	220	222	nt
542-62-1	Barium cyanide	345	345	nt
542-75-6	1,3-Dichloropropene	260	261	T
542-76-7	3-Chloropropionitrile	260 / 430	261 / 431	nt
542-88-1	Bis(chloromethyl) ether	240 / 260	241 / 261	nt
544-92-3	Cuprous cyanide	345	345	nt
545-06-2	Trichloroacetonitrile	430	431	nt
557-19-7	Nickel cyanide	345	345	nt
557-21-1	Zinc cyanide	345	345	nt
558-13-4	Carbon tetrabromide	260	261	nt
563-47-3	3-Chloro-2-methylpropene	260	265	nt
583-52-8	Potassium oxalate	340	340	nt
584-08-7	Potassium carbonate	340	340	nt
584-84-9	Toluene-2,4-diisocyanate	210	212	T
590-17-0	Bromoacetonitrile	430	431	nt
590-86-3	Isovaleraldehyde	120	121	nt
591-78-6	Methyl n-butyl ketone	390	391	nt
592-01-8	Calcium cyanide	345	345	nt
592-04-1	Mercuric cyanide	345	345	nt
592-27-8	Isooctane	290	291	nt
592-41-6	1-Hexene	290	294	nt
593-53-3	Methyl fluoride	260	261	T
593-60-2	Vinyl bromide	260	264	nt
611-14-3	2-Ethyltoluene	290	292	nt
617-79-8	2-Ethylbutylamine	140	141	nt
624-48-6	Dimethyl maleate	220	224	T
624-83-9	Methyl isocyanate	210	211	T
624-92-0	Dimethyl disulfide	500	502	nt
627-18-9	3-Bromo-1-propanol	260 / 310	261 / 315	nt
627-30-5	3-Chloro-1-propanol	260 / 310	261 / 315	nt
628-63-7	n-Amyl acetate	220	222	T
630-08-0	Carbon monoxide	350	350	T
630-20-6	1,1,1,2-Tetrachloroethane	260	261	nt
631-61-8	Ammonium acetate	340	340	nt
640-19-7	Fluoroacetamide	130	132	nt
646-06-0	1,3-Dioxolane	240	241	nt
692-42-2	Diethyl arsine	470	470	nt
764-41-0	1,4-Dichloro-2-butene	260	264	T
765-34-4	Glycidaldehyde	270	275	nt
777-77-7	Methylacrylic acid	300	300	nt
811-97-2	1,1,1,2-Tetrafluoroethane	260	261	T
818-61-1	Hydroxyethylacrylate	220	223	nt

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CAS Number	Index Name	Class	Sub-Class	T or nt
822-06-0	Hexamethylene diisocyanate	210	211	T
828-00-2	Dimethoxane	270	278	nt
872-50-4	n-Methyl-2-pyrrolidone	130	132	T
920-37-6	Chloroacrylonitrile	260 / 430	264 / 431	nt
921-03-9	1,1,3-Trichloroacetone	260 / 390	261 / 391	T
998-30-1	Triethoxysilane	480	480	nt
999-97-3	Hexamethyldisilazane	140 / 480	142 / 480	T
1066-30-4	Chromic acetate	550	550	nt
1300-71-6	Xylenol	310	316	nt
1300-73-8	Xylidine	140	145	nt
1303-28-2	Arsenic pentoxide	365	365	nt
1305-62-0	Calcium hydroxide	380	380	nt
1305-78-8	Calcium oxide	380	380	nt
1310-58-3	Potassium hydroxide	380	380	T
1310-65-2	Lithium hydroxide	380	380	T
1310-73-2	Sodium hydroxide	380	380	T
1313-82-2	Sodium sulfide	340	340	nt
1314-56-3	Phosphoric anhydride	370	370	nt
1317-65-3	Calcium carbonate	340	340	nt
1319-77-3	Cresol, mixed isomers	310	316	T
1321-12-6	Nitrotoluene, mixture	440	442	nt
1321-74-0	Divinyl benzene	290	292	nt
1327-53-3	Arsenic trioxide	365	365	nt
1330-20-7	Xylene, mixed isomers	290	292	T
1330-78-5	Tritolyl phosphate	460	462	nt
1333-82-0	Chromic acid	370	370	T
1336-21-6	Ammonium hydroxide	380	380	T
1338-23-4	2-Butanone peroxide	300	300	nt
1401-55-4	Tannic acid	310	316	nt
1493-13-6	Trifluoromethane sulfonic acid	500	504	T
1552-12-1	Cyclooctadiene	290	296	nt
1615-80-1	Diethylhydrazine	280	280	nt
1633-83-6	1,4-Butanesultone	500	503	nt
1634-04-4	Methyl t-butyl ether	240	241	T
1675-54-3	Bisphenol-A diglycidyl ether	270	275	T
1746-01-6	Dioxin	260	263	nt
1888-71-7	Hexachloropropene	260	264	nt
2050-92-2	Di-n-amylamine	140	142	nt
2163-42-0	2-Methyl-1,3-propanediol	310	314	nt
2210-28-8	Propyl methacrylate	220	223	nt
2425-79-8	1,4-Butanediol diglycidyl ether	270	275	nt
2551-62-4	Sulfur hexafluoride	350 / 500	350 / 509	T
2642-71-9	Azinphos ethyl	460	462	nt
2696-92-6	Nitrosyl chloride	350	350	nt
2807-30-9	Ethylene glycol monopropyl ether	240	245	nt
2921-88-2	Chlorpyrifos	460	462	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
3071-32-7	Ethyl benzene hydroperoxide	300	300	nt
3132-64-7	Epibromohydrin	270	275	nt
3173-53-3	Cyclohexyl isocyanate	210	211	T
3536-96-7	Vinylmagnesium chloride, 16.5%	470	470	T
3607-78-1	1,1,1-3,3,3-Hexachloropropane	260	264	T
3811-04-9	Potassium chloride	340	340	nt
3887-02-3	N-Methyl methacrylamide	130	135	nt
4098-71-9	Isophorone diisocyanate	210	211	nt
4109-96-0	Dichlorosilane	480	480	T
4553-62-2	2-Methylglutaronitrile	430	431	T
4635-87-4	3-Pentenenitrile	430	431	T
4655-34-9	Isopropyl methacrylate	220	223	nt
5124-30-1	Methylene bis(cyclohexylisocyanate)	210	211	nt
5216-25-1	4-Chlorobenzotrichloride	260	263	nt
5989-27-5	d-Limonene	290	296	T
6032-29-7	2-Pentanol	310	312	nt
6153-56-6	Oxalic acid dihydrate	100	104	T
6192-52-5	p-Toluene sulfonic acid monohydrate	500	504	nt
6291-84-5	Methyl aminopropylamine	140	148	nt
6303-21-5	Hypophosphorus acid	370	370	nt
6915-15-7	Malic acid	100	104	nt
7439-97-6	Mercury	330	330	T
7446-09-5	Sulfur dioxide	350 / 365	350 / 365	T
7446-11-9	Sulfur trioxide	365	365	T
7446-14-2	Lead sulfate	340	340	nt
7446-70-0	Aluminum chloride	360	360	nt
7447-41-8	Lithium chloride	340	340	T
7487-88-9	Magnesium sulfate	340	340	nt
7487-94-7	Mercuric chloride	340	340	T
7550-45-0	Titanium tetrachloride	360	360	T
7553-56-2	Iodine	330	330	T
7601-54-9	Sodium phosphate	340	340	nt
7601-90-3	Perchloric acid	370	370	T
7631-90-5	Sodium bisulfite	340	340	nt
7637-07-2	Boron trifluoride	350 / 360	350 / 360	T
7647-01-0	Hydrochloric acid	370	370	T
7647-01-0	Hydrogen chloride gas	350	350	T
7647-14-5	Sodium chloride	340	340	nt
7647-18-9	Antimony pentachloride	360	360	T
7664-38-2	Phosphoric acid	370	370	T
7664-39-3	Hydrofluoric acid	370	370	T
7664-39-3	Hydrogen fluoride gas	350	350	T
7664-39-3	Hydrogen fluoride liquid	350 / 370	350 / 370	T
7664-41-7	Ammonia gas	350	350	T
7664-41-7	Ammonia liquid	350 / 380	350 / 380	T
7664-93-9	Sulfuric acid	370	370	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
7681-49-4	Sodium fluoride	340	340	T
7681-52-9	Sodium hypochlorite	340	340	T
7697-37-2	Nitric acid	370	370	T
7705-08-0	Ferric chloride	340	340	nt
7718-54-9	Nickel chloride	340	340	nt
7719-09-7	Thionyl chloride	360	360	T
7719-12-2	Phosphorus trichloride	360	360	T
7722-64-7	Potassium permanganate	340	340	T
7722-84-1	Hydrogen peroxide	300	300	T
7726-95-6	Bromine	330	330	T
7727-21-1	Potassium persulfate	340	340	nt
7732-18-5	Water	590	590	nt
7757-82-6	Sodium sulfate	340	340	nt
7757-83-7	Disodium sulfite	340	340	nt
7758-94-3	Ferrous chloride	340	340	nt
7758-98-7	Cupric sulfate	340	340	nt
7775-27-1	Sodium persulfate	340	340	nt
7778-39-4	Arsenic acid	370	370	nt
7782-41-4	Fluorine	350	350	T
7782-50-5	Chlorine	330 / 350	330 / 350	T
7782-99-2	Sulfurous acid	370	370	nt
7783-00-8	Selenious acid	370	370	nt
7783-06-4	Hydrogen sulfide	350 / 500	350 / 502	T
7783-07-5	Hydrogen selenide	350	350	T
7783-20-2	Ammonium sulfate	340	340	nt
7783-50-8	Ferric fluoride	340	340	nt
7783-54-2	Nitrogen trifluoride	350	350	T
7783-70-2	Antimony pentafluoride	360	360	nt
7783-82-6	Tungsten hexafluoride	350	350	T
7784-18-1	Aluminum fluoride	360	360	nt
7784-30-7	Aluminum phosphate	340	340	nt
7784-34-1	Arsenic trichloride	340	340	nt
7784-42-1	Arsine	350	350	T
7789-00-6	Potassium chromate	340	340	T
7789-21-1	Fluorosulfonic acid	370	370	T
7789-23-3	Potassium fluoride	340	340	nt
7789-30-2	Bromine pentafluoride	360	360	nt
7789-75-5	Calcium fluoride	340	340	nt
7790-91-2	Chlorine trifluoride	350	350	T
7790-94-5	Chlorosulfonic acid	370 / 500	370 / 504	T
7791-25-5	Sulfuryl chloride	350 / 360	350 / 360	T
7803-51-2	Phosphine	350	350	T
7803-57-8	Hydrazine hydrate	280	280	T
7803-62-5	Silane	480	480	T
8001-58-9	Creosote	310	316	T
8002-05-9	Crude oil	290 / 590	294 / 590	T

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CAS Number	Index Name	Class	Sub-Class	T or nt
8004-13-5	Dowtherm Heat Transfer Fluid	590	590	nt
8006-64-2	Turpentine	290	294	nt
8008-20-6	Kerosene	290	291	T
8008-20-6	JP-8	290	291	T
8008-20-6	Jet A fuel	290	291	T
8012-95-1	Mineral oil	290	291	T
8014-95-7	Oleum	370	370	T
8030-30-6	Naphtha	290	291	nt
8030-32-4	VM and P naphtha	290	291	T
8032-32-4	Mineral oil	290	291	T
8052-41-3	Stoddard solvent	290	291	T
9106-87-9	Polymethylene polyphenylpolyisocyanate	210	212	T
10024-97-2	Nitrous oxide	350	350	T
10025-67-9	Disulfur dichloride	500	502	T
10025-78-2	Trichlorosilane	480	480	T
10025-87-3	Phosphorus oxychloride	360	360	T
10025-91-9	Antimony trichloride	340	340	nt
10026-04-7	Silicon tetrachloride	360 / 480	360 / 480	T
10034-85-2	Hydriodic acid	370	370	T
10035-10-6	Hydrobromic acid	370	370	nt
10039-54-0	Hydroxylamine sulfate	500	507	nt
10043-01-3	Aluminum sulfate	340	340	nt
10043-35-3	Boric acid	370	370	nt
10043-52-4	Calcium chloride	340	340	nt
10049-04-4	Chlorine dioxide	350	350	T
10101-53-8	Chromic sulfate	340	340	nt
10102-43-9	Nitric oxide	350	350	T
10102-44-0	Nitrogen dioxide	350	350	T
10217-52-4	Hydrazine hydrate	280	280	T
10294-34-5	Boron trichloride	350 / 360	350 / 360	T
10544-72-6	Nitrogen tetroxide	350	350	T
10545-99-0	Sulfur dichloride	500	502	T
10588-01-9	Sodium dichromate	340	340	nt
11097-69-1	PCB	260	263	T
12125-01-8	Ammonium fluoride	340	340	T
12125-02-9	Ammonium chloride	340	340	T
12135-76-1	Ammonium sulfide	340	340	nt
13284-42-9	2-Pentenitrile	430	431	nt
13463-39-3	Nickel carbonyl	470	470	T
13463-67-7	Titanium dioxide	380	380	nt
13473-90-0	Aluminum nitrate	340	340	nt
13530-65-9	Zinc chromate	340	340	nt
13780-03-5	Calcium bisulfate	340	340	nt
13814-96-5	Lead fluoroborate	340	340	nt
13952-84-6	sec-Butylamine	140	141	nt
14307-35-8	Lithium chromate	340	340	nt

Permeation Guide for Selected DuPont™ Tychem® Protective Fabrics. *Effective January 2003.*  
**Chemical Index by Chemical Abstract System (CAS) Number**

CAS Number	Index Name	Class	Sub-Class	T or nt
14486-19-2	Cadmium fluoroborate	360	360	nt
15120-17-9	Sodium arsenite	340	340	nt
16721-80-5	Sodium hydrosulfide	340	340	nt
16752-77-5	Methomyl	230	233	T
16872-11-0	Fluoroboric acid	370	370	T
16961-83-4	Fluorosilicic acid	370	370	T
19287-45-7	Diborane	350	350	T
19686-73-8	1-Bromo-2-propanol	260 / 310	261 / 315	nt
21645-51-2	Aluminum hydroxide	380	380	nt
23135-22-0	Oxamyl	130	137	nt
25013-15-4	Methylstyrene	290	292	nt
25103-12-2	Trioctyl phosphate	460	462	nt
25103-58-6	tert-Dodecyl mercaptan	500	501	nt
25154-52-3	n-Nonyl phenol	310	316	nt
25155-15-1	p-Cymene	290	292	nt
25155-30-0	Dodecyl benzene sulfonate	500	507	nt
25323-30-2	Dichloroethylene, all isomers	260	264	nt
25550-58-7	Dinitrophenol	310 / 440	316 / 442	nt
25899-50-7	cis-2-Pentenenitrile	430	431	T
26447-14-3	1,2-Epoxy-3-(tolxyoxy)propane	270	275	nt
26471-62-5	Toluene-1,3-diisocyanate	210	212	T
26746-38-3	Dibutylphenol	310	316	nt
28519-06-4	Chlorodecane mixed isomers	260	261	nt
30525-89-4	Paraformaldehyde	120	121	nt
30894-74-7	2,3-Dichloro-6-isopropyl-S-triazine	270	274	T
50782-69-9	VX Nerve Agent	460 / 595	462 / 595	T
52583-42-3	Nitric acid, red fuming	370	370	T
57292-32-7	Aluminum sulfate hydrate	340	340	nt
63885-09-6	Isocetaldehyde	120	121	nt
64475-85-0	Mineral spirits	290	291	T
67664-94-2	Epoxytrichloropropane	270	275	nt
68131-30-6	Green liquor	590	590	T
68131-33-9	White liquor	590	590	T
68334-30-5	Diesel fuel	290	291	T
86290-81-5	Gasoline	290	291 / 292	T
95660-51-8	Skydrol®	460	462	nt
106602-80-6	Otto Fuel II	590	590	nt
191681-14-8	AFFF	590	590	nt
308074-23-9	Black Liquor	590	590	T
mixture	Chemidize 727 ND	590	590	T
mixture	Cyanex®	460	461	nt
mixture	Cyanogen bromide 30% in bromic acid	345 / 350	345 / 350	nt
mixture	m-Cresol 55%, p-Cresol 30%, Phenol 15%	310	316	T
mixture	Decontaminating agent DS-2	590	590	nt
mixture	Dichlorotoluene	290	263	T
mixture	Diesel test fuel	290	291	T

**Chemical Index by Chemical Abstract System (CAS) Number**

<b>CAS Number</b>	<b>Index Name</b>	<b>Class</b>	<b>Sub-Class</b>	<b>T or nt</b>
mixture	DuPont Activators with hexamethylene diisocyanate	210 / 590	211 / 590	T
mixture	Ethyl benzene 80%, 4,6-Dinitro-o-cresol 20%	590	590	T
mixture	Ethylene oxide, 10% in HCFC 124	270	274	T
mixture	Fuel oil	290	291	T
mixture	Glade Intech 200	590	590	T
mixture	Hexamethylene diisocyanate in DuPont Activators	590	590	T
mixture	JP-4 jet fuel	290	291	T
mixture	Organo-Tin Paint	470	470	nt
mixture	Sodium-t-amylate / t-amyl alcohol	590	590	T
mixture	Tetramethyltin in n-pentane	590	590	T

### Chemical Warfare Agents

Permeation test results are shown as follows:				> = greater than				
Average Breakthrough Time (minutes)				< = less than				
Minimum Detectable Permeation Rate (µg/cm <sup>2</sup> /min)				nt = not tested				
Agent	Common Name	CAS Number	Protocol	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
GA	Tabun	77-81-6	DN5	nt	nt	nt	>720 8 X 10 <sup>-7</sup>	>720 8 X 10 <sup>-7</sup>
			DN6	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	>720 4 X 10 <sup>-7</sup>
GB	Sarin	107-44-8	DN5	360 1 X 10 <sup>-5</sup>	nt	nt	>720 4.2 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>
			DN6	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	>720 4 X 10 <sup>-4</sup>	>720 1 X 10 <sup>-6</sup>
GD	Soman	99-64-0	DN5	nt	nt	nt	>720 4.2 X 10 <sup>-7</sup>	>720 2.1 X 10 <sup>-7</sup>
			DN6	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	>720 4 X 10 <sup>-7</sup>
HD	Sulfur Mustard	505-60-2	DN3	180 0.002	nt	nt	>720 4.2 X 10 <sup>-7</sup>	>720 0.00021
			DN4	nt	>720 <0.002	>720 <0.002	>720 8 X 10 <sup>-4</sup>	>720 8 X 10 <sup>-4</sup>
L	Lewisite	541-25-3	DN3	>360 8 X 10 <sup>-4</sup>	nt	nt	>720 2.5 X 10 <sup>-5</sup>	>720 0.0000125
			DN4	nt	360 0.006	360 0.006	120 7 X 10 <sup>-5</sup>	>720 8 X 10 <sup>-4</sup>
VX	VX Nerve Agent	50782-69-9	DN5	>720 5 X 10 <sup>-7</sup>	nt	nt	>720 4.2 X 10 <sup>-7</sup>	>720 2.1 X 10 <sup>-7</sup>
			DN6	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	>720 8 X 10 <sup>-7</sup>	>720 8 X 10 <sup>-7</sup>

#### Fabric Test Protocols.

All tests performed in triplicate for DuPont Personal Protection by an independent accredited laboratory at 22° C, 50% R.H.

Protocol DN3 - MIL-STD-282, Method T-209 (HD) or modified for Lewisite, for 12 hours at 10 g/m<sup>2</sup>.

Protocol DN4 - MIL-STD-282, Method T-209 (HD) or modified for Lewisite, for 12 hours at 100 g/m<sup>2</sup> (total coverage).

Protocol DN5 - MIL-STD-282, Method T-208 (GB) or modified for GA, GD, and VX, for 12 hours at 10 g/m<sup>2</sup>.

Protocol DN6 - MIL-STD-282, Method T-208 (GB) or modified for GA, GD, and VX, for 12 hours at 100 g/m<sup>2</sup> (total coverage).

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**Permeation Data Table for Selected Tychem® Fabrics**

Permeation test results are listed as follows:		Symbols and Abbreviations used in data table:								
Average Standardized Breakthrough Time (minutes)		> = more than   < = less than   imm. = immediate (less than 10 minutes)								
Average Steady-State Permeation Rate (µg/cm <sup>2</sup> /min.)		nm = not measured   nd = not detected   S = Solid   L = Liquid   G = Gas								
		* Actual breakthrough time; standardized data not available.								
Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>100 Carboxylic acids</b>										
<b>102 Aliphatic and Alicyclic, Unsubstituted</b>										
		Acetic acid	64-19-7	L	imm.	>480		>480	339	>480
					3	<0.1		0.08	1.3	<0.1
		Acrylic acid	79-10-7	L	imm.	>480		>480	270	>480
					5.4	<0.001		<0.001	1.6	<0.06
		Formic acid	64-18-6	L	imm.	>480		260	>480	>480
					0.33	<0.1		0.24	<0.01	<0.01
		Methacrylic acid	79-41-4	L					>480	>480
									<0.01	<0.01
<b>103 Aliphatic and Alicyclic, Substituted</b>										
		Chloroacetic acid	79-11-8	L				>480	>480	>480
								<0.1	<0.1	<0.1
		Chloroacetic acid, 75%-80%	79-11-8	L	370	>480			>480	>480
					1	<0.1			<0.01	<0.01
		Glycolic acid, sat. sol. in water	79-14-1	L					>480	>480
									<0.1	<0.1
		Thioglycolic acid	68-11-1	L					>480	>480
									<0.1	<0.1
		Trichloroacetic acid	76-03-9	L				>480		
								<0.1		
		Trifluoroacetic acid	76-05-1	L		>480		>480		
						<0.1		<0.01		
<b>104 Aliphatic and Alicyclic, Polybasic</b>										
		Oxalic acid, 10.5%	144-62-7	L					>480	>480
									<0.1	<0.1
<b>110 Acid Halides, Carboxylic</b>										
<b>111 Aliphatic and Alicyclic</b>										
		Acetyl chloride	75-36-5	L		37*			181	>480
						1.1			2	<0.05
		Chloroacetyl chloride	79-04-9	L		120			160	160
						15.6			23.2	23.2
		Dichloroacetyl chloride	79-36-7	L					100	>480
									20.5	<0.01
<b>112 Aromatic</b>										
		Benzoyl chloride	98-88-4	L					>480	>480
									<0.05	<0.05
<b>113 Chloroformates</b>										
		Methyl chloroformate	79-22-1	L					>480	>480
									0.011	0.011
<b>120 Aldehydes</b>										
<b>121 Aliphatic and Alicyclic</b>										
		Acetaldehyde	75-07-0	L			109	109	>480	>480
							0.56	0.56	<0.01	<0.01
		Acrolein	107-02-8	L		60		63	>480	>480
						4.1		0.41	<0.02	<0.02
		Acrolein, 59%	107-02-8	L		imm.			>480	>480
						5.3			<0.1	<0.1
		n-Butyraldehyde	123-72-8	L	imm.	50			>480	>480
					22	6.1			<0.007	<0.007

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK		
		trans-Crotonaldehyde	123-73-9	L		38 0.77			>480 <0.006	>480 <0.006		
		Formaldehyde gas, 100 ppm	50-00-0	G					>480 <0.01	>480 <0.01		
		Formalin (Formaldehyde 37%)	50-00-0	L	imm. 0.31	>480 <0.1		>480 <0.001	>480 <0.09	>480 <0.09		
		Formalin, 10%	50-00-0	L	>480 0.003							
		Gluteraldehyde, 5% aqueous sol.	111-30-8	L	>480 <0.02	>480 <0.04			>480 <0.1	>480 <0.1		
		Gluteraldehyde, 50%	111-30-8	L		>480 <0.1			>480 <0.1	>480 <0.1		
		<b>122 Aromatic</b>										
		2-Furaldehyde	98-01-1	L		245* 0.2		>480 0.01	>480 <0.01	>480 <0.01		
<b>130 Amides</b>												
<b>132 Aliphatic and Alicyclic</b>												
		N,N-Dimethylacetamide	127-19-5	L		64* 2.04			>480 <0.006	>480 <0.006		
		N,N-Dimethylformamide	68-12-2	L	imm. 0.72	95 0.11	>480 <0.001	>480 <0.01	>480 <0.001	>480 <0.01		
		n-Methyl-2-pyrrolidone	872-50-4	L		>480 <0.06	>480 <0.001	>480 <0.001	>480 <0.01	>480 <0.01		
		<b>135 Acrylamides</b>										
		Acrylamide, 50% in water	79-06-1	L		>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.1	>480 <0.1		
<b>140 Amines</b>												
<b>141 Aliphatic and Alicyclic, Primary</b>												
		n-Butylamine	109-73-9	L					>480 <0.01	>480 <0.01		
		tert-Butylamine	75-64-9	L					>480 <0.03	>480 <0.03		
		Ethanolamine	141-43-5	L				>480 <0.001	>480 <0.1	>480 <0.1		
		Ethylamine (15° C)	75-04-7	L					361 1.49	>480 <0.02		
		Isopropylamine	75-31-0	L					>480 <0.01	>480 <0.01		
		Methylamine	74-89-5	G					105 40	>480 <0.06		
		Methylamine, 40% sol.	74-89-5	L					261 1.8	261 1.8		
		Methylamine, 50%	74-89-5	L					232 2.2	232 2.2		
		<b>142 Aliphatic and Alicyclic, Secondary</b>										
				Diethylamine	109-89-7	L	imm. 64	12 >50	>480 <0.001	>480 <0.001	>480 <0.001	>480 <0.1
Dimethylamine	124-40-3			G						>480 <0.05		
Hexamethyldisilazane	999-97-3			L		>480 <0.03			>480 <0.02	>480 <0.02		
Morpholine	110-91-8			L		153 1.38			>480 <0.1	>480 <0.1		
<b>143 Aliphatic and Alicyclic, Tertiary</b>												
				Triethylamine	121-44-8	L		>480* <2			>480 <0.1	>480 <0.1

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Trimethylamine gas	75-50-3	G						>480 <0.1
<b>145 Aromatic, Primary</b>										
		Aniline	62-53-3	L	imm. 2.1	>480 0.09	29 65.5	>480 <0.05	>480 <0.1	>480 <0.1
		Benzidine, 25% in Methanol	92-87-5	L					>480 <0.01	>480 <0.01
		Benzidine, 75% in Methanol	92-87-5	L						>480 <0.1
		4-Chloroaniline	106-47-8	S					>480 <0.09	>480 <0.09
		4-Chloroaniline (70° C)	106-47-8	L	imm. 90			344 9.4	344 9.4	344 9.4
		3,4-Dichloroaniline	95-76-1	S					>480 <0.001	>480 <0.001
		3,4- Dichloroaniline (70°C)	95-76-1	L	imm. 17				284 2.4	284 2.4
		Diethyl-m-toluidine crude	91-67-8	L		>480 <0.1				
		4,4'-Methylene dianiline	101-77-9	L						>480 <0.1
		4,4'-Methylene dianiline,15% sol'n. in MEK	101-77-9	L					>480 <0.1	>480 <0.1
		m-Toluidine	108-44-1	L		>480 <0.001				
		o-Toluidine	95-53-4	L	imm. 1	255* 0.36		>480 <0.001	>480 <0.001	>480 <0.001
<b>146 Aromatic, Secondary and Tertiary</b>										
		Diethylaniline crude	91-66-7	L		>480 <0.1				
		N,N-Dimethylaniline	121-69-7	L					>480 <0.013	>480 <0.013
<b>148 Aliphatic and Alicyclic Polyamines</b>										
		Diethylenetriamine	111-40-0	L					>480 <0.01	>480 <0.1
		Ethylenediamine	107-15-3	L	201* 2.9	>480 <0.01		>480 <0.001		
		1,6-Hexamethylenediamine (45° C)	124-09-4	L					>480 <0.01	>480 <0.01
<b>149 Aromatic Polyamines</b>										
		Benzidine, 25% in Methanol	92-87-5	L					>480 <0.01	>480 <0.01
		Benzidine, 75% in Methanol	92-87-5	L						>480 <0.1
		4,4'-Methylene bis (o-chloroaniline), sat. sol. in methanol	101-14-4	L		>480 <0.1			>480 <0.1	>480 <0.1
		4,4'-Methylene dianiline	101-77-9	L						>480 <0.1
		4,4'-Methylene dianiline,15% sol'n. in MEK	101-77-9	L					>480 <0.1	>480 <0.1
<b>160 Anhydrides</b>										
<b>161 Aliphatic and Alicyclic</b>										
		Acetic anhydride	108-24-7	L		>480 <0.1			>480 <0.001	>480 <0.001

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>210 Isocyanates</b>										
<b>211 Aliphatic and Alicyclic</b>										
		Cyclohexyl isocyanate	3173-53-3	L		>480 <0.1				
		Hexamethylene diisocyanate	822-06-0	L	>480 <0.024	>480 <0.001		>480 <0.07	>480 <0.01	>480 <0.01
		Hexamethylene diisocyanate in DuPont Activator 193S	mixture	L	>480 <0.1					
		Hexamethylene diisocyanate in DuPont Activator 4505S	mixture	L	>480 <0.01					
		Hexamethylene diisocyanate in DuPont Activator 4507S	mixture	L	>480 <0.1					
		Methyl isocyanate	624-83-9	L		imm. 99		imm. 0.42	>480 <0.013	>480 <0.013
<b>212 Aromatic</b>										
		4,4'-Diphenyl methane diisocyanate	101-68-8	S					>480 <0.07	>480 <0.07
		Paraphenylene diisocyanate (PPDI) crude	104-49-4	L					>480 <0.1	>480 <0.1
		Polymethylene polyphenylpolyisocyanate	9016-87-9	L		>480 <0.01		>480* <0.65	>480 <0.1	>480 <0.1
		Toluene-1,3-diisocyanate	26471-62-5	L					>480 <0.01	>480 <0.01
		Toluene-2,4-diisocyanate	584-84-9	L	imm. 42	>480 <0.05		>480 0.037	>480* <0.5	>480* <0.5
<b>220 Carboxylic Esters</b>										
<b>222 Aetates</b>										
		n-Amyl acetate	628-63-7	L				>480 0.07	>480 <0.003	>480 <0.003
		n-Butyl acetate	123-86-4	L					>480 <0.01	>480 <0.01
		Ethyl acetate	141-78-6	L	imm. 13	14 0.54	>480 <0.001	>480 <0.001	>480 <0.001	>480 <0.06
		Vinyl acetate	108-05-4	L		82 1.45		imm. 0.8	>480 <0.01	>480 <0.01
<b>223 Acrylates and Methacrylates</b>										
		n-Butyl acrylate	141-32-2	L					51 18.4	>480 <0.02
		Ethyl acrylate	140-88-5	L					14 91	>480 <0.02
		Methyl acrylate	96-33-3	L					>480 <0.01	>480 <0.01
		Methyl methacrylate	80-62-6	L		33 18.1		70 1.55	>480 <0.02	>480 <0.02
<b>224 Aliphatic, Others</b>										
		Dimethylmaleate	624-48-6	L		>480 <0.1				
<b>226 Benzoates and Phthalates</b>										
		Di (2-ethylhexyl) phthalate	117-81-7	L			>480 <0.1	>480 <0.1	>480 <0.07	>480 <0.07
		Methyl salicylate	119-36-8	L	imm. 0.5	>480 <0.01				

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>230 Non-Carboxylic Esters</b>										
<b>233 Carbamates and Others</b>										
		Methomyl, 29%	16752-77-5	L					>480 <0.1	>480 <0.1
<b>240 Ethers</b>										
<b>241 Aliphatic and Alicyclic</b>										
		n-Butyl ether	142-96-1	L				196 0.2	>480 0.001	>480 0.001
		Chloromethyl methyl ether	107-30-2	L				46 0.7	>480 0.03	>480 0.03
		Dichloroethyl ether	111-44-4	L					>480 <0.01	>480 <0.01
		Dimethyl ether	115-10-6	G						>480 <0.07
		Ethyl ether	60-29-7	L		imm.* 1.6			>480 <0.001	>480 <0.001
		Methyl tert-butyl ether	1634-04-4	L		>480 <0.1	>480 <0.01	>480 <0.01	>480 <0.007	>480 <0.007
		Tetrahydrofuran	109-99-9	L	imm. 183	imm. >50	314 0.19	464 0.12	>480 <0.001	>480 <0.04
<b>245 Glycol Ethers</b>										
		Butyl Cellosolve®	111-76-2	L		>480 <0.003				
		Ethyl Cellosolve®	110-80-5	L		>480 <0.007			>480 <0.008	>480 <0.008
		Ethyl Cellosolve® acetate	111-15-9	L		39* 1.8	>480 0.03	>480 0.03	>480 <0.002	>480 <0.002
		Ethylene diglycol monoethyl ether	111-90-0	L		>480 <0.07				
		Methyl Cellosolve®	109-86-4	L		89 5.77	>480 <0.001	>480 0.002	>480 <0.01	>480 <0.01
		Methyl Cellosolve® acetate	110-49-6	L		260* 1.1			>480 <0.01	>480 <0.01
<b>260 Halogen Compounds</b>										
<b>261 Aliphatic and Alicyclic</b>										
		Carbon tetrachloride	56-23-5	L				11 0.57	>480 <0.015	>480 <0.015
		Chlordane	57-74-9	L					>480 <0.01	>480 <0.01
		2-Chloroethanol	107-07-3	L	imm. 3.1			>480 <0.001	>480 <0.008	>480 <0.008
		Chloroform	67-66-3	L	imm. 350	imm. 201		imm. 10	>480 <0.004	>480 <0.004
		1,3-Dichloroacetone (40° C)	534-07-6	L					>480 <0.1	>480 <0.1
		1,2-Dichloroethane	107-06-2	L		imm. 2			>480 <0.002	>480 <0.002
		Dichloroethyl ether	111-44-4	L					>480 <0.01	>480 <0.01
		Dichloromethane	75-09-2	L	imm. >50	imm. >50	imm. 11	imm. 8	432 0.06	>480 <0.03
		1,3-Dichloropropene	542-75-6	L		imm. 127		25 1.6		
		2,3-Dichloropropene	78-88-6	L					>480 <0.008	>480 <0.008

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK		
		1,1-Dichlorotetrafluoroethane	374-07-2	L		>480 <0.1						
		Ethyl chloride	75-00-3	L						>480 <0.02		
		Ethylene dibromide	106-93-4	L				288 0.52	>480 <0.1	>480 <0.1		
		Ethylene oxide, 10% in HCFC 124	mixture	G						>480 <0.02		
		Hexafluoroethane	76-16-4	G			>480 <0.02			>480 <0.02		
		Hexafluoroisobutylene	382-10-5	G						>480 <0.01		
		Lindane, sat. sol. in acetone	58-89-9	L						>480 <0.06		
		Lindane, sat. sol. in methanol	58-89-9	L						>480 <0.1		
		Methyl bromide	74-83-9	G			>480 <0.1			>480 <0.01		
		Methyl chloride	74-87-3	G	imm. 0.23	>480 <0.006	>480 <0.001	>480 0.004	>480 <0.001	>480 <0.02		
		Methyl chloride (-70° C)	74-87-3	L						>180 <0.05		
		Methyl fluoride	593-53-3	G						>480 <0.02		
		Methyl iodide	74-88-4	L		imm. 342				>480 <0.01		
		Propylene dichloride	78-87-5	L		73 3.2				>480 <0.01		
		1,1,2,2-Tetrachloroethane	79-34-5	L		75* 12				>480 0.0005		
		1,1,1,2-Tetrafluoroethane	811-97-2	L		>480 <0.1						
		Tetrafluoromethane	75-73-0	G						>480 <0.018		
		1,1,3-Trichloroacetone	921-03-9	L					>480 <0.05			
		1,1,1-Trichloroethane	71-55-6	L						>480 <0.004		
		1,1,2-Trichloroethane	79-00-5	L						>480 <0.01		
		1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	G						>480 <0.01		
		Trifluoroacetic acid	76-05-1	L			>480 <0.1		>480 <0.01			
		Trifluoromethane	75-46-7	G						>480 <0.014		
		<b>263 Aromatic</b>										
				4-Bromofluorobenzene	460-00-4	L					>480 <0.001	>480 <0.001
				Chlorobenzene	108-90-7	L		36 14.1		70 0.43	>480 <0.001	>480 <0.001
				4-Chlorophenol, sat. sol. in methanol	106-48-9	L						>480 <0.013
				o-Chlorotoluene	95-49-8	L		26* 26				>480 <0.001

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK		
		Cyanuric chloride 20%, Toluene 80%	Mixture	L					>480 <0.1	>480 <0.1		
		3,4-Dichloroaniline	95-76-1	S					>480 <0.001	>480 <0.001		
		3,4-Dichloroaniline (70°C)	95-76-1	L		imm. 17				284 2.4	284 2.4	
		Fluorobenzene	462-06-6	L		imm. >500			imm high	>480 <0.1	>480 <0.1	
		o-Nitrochlorobenzene	88-73-3	S		15 4.1	237 0.61					
		o-Nitrochlorobenzene (35° C)	88-73-3	L			80 2.4					
		p-Nitrochlorobenzene	100-00-5	S		imm. 2.3	476 0.11					
		p-Nitrochlorobenzene (85° C)	100-00-5	L			321 1.5					
		PCB 1254	11097-69-1	L		55 >3.6	>480* <0.2					
		PCB gas condensate	mixture	L			401 0.36	>480 <0.001	>480 <0.001			
		PCB in transformer oil	mixture	L					>480 <0.001			
		PCB 50%, Mineral oil 50%	mixture	L			>480* nd					
		PCB 1%, Mineral spirits 99%	mixture	L			>480* nd					
		PCB 4%, TCB 6%, Mineral spirits 90%	mixture	L			60* 0.04					
		2,2',6,6' Tetrachlorobisphenol A	79-95-8	S					>480 <0.1			
		PCB 50%, Trichlorobenzene 50%	mixture	L			>480 <0.1			>480 <0.001	>480 <0.001	
		1,2,4-Trichlorobenzene	120-82-1	L		imm. 8.4	113 1.2		>480 <0.001	>480 <0.01	>480 <0.01	
		<b>264 Vinylic</b>										
				trans-1,4-Dichloro-2-butene	110-57-6	L	75* 246					
				1,4- Dichloro-2-butene, 85%	764-41-0	L						
trans-1,2-Dichloroethylene	156-60-5			L		imm. 306						
1,3- Hexachlorobutadiene	87-68-3			L					>480 <0.01	>480 <0.01		
1,1,1-3,3,3-Hexachloropropane	3607-78-1			L			>480 <0.1					
1,1,1,2,2-Tetrachloroethylene	127-18-4			L	imm. high	imm. 5.7	>480 <0.001	>480 <0.022	>480 <0.001	>480 <0.01		
Trichloroethylene	79-01-6			L		imm. >35				>480 <0.1	>480 <0.1	
Vinyl chloride	75-01-4			G			>480 <0.1	>480 <0.001	>480 0.02	>480 <0.001	>480 <0.001	
Vinylidene chloride	75-35-4			L						>480 <0.01	>480 <0.01	
<b>265 Allylic</b>												
				Allyl chloride	107-05-1	L		imm. 18.5		imm. <0.1	>480 <0.06	>480 <0.06

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>266 Benzylic</b>										
		Benzyl chloride	100-44-7	L					>480 <0.01	>480 <0.01
<b>270 Heterocyclic Compounds</b>										
<b>271 Nitrogen, Pyridines</b>										
		2-Aminopyridine	504-29-0	L		321 112				
		Nicotine	54-11-5	L		>480 <0.035	>480 <0.1		>480 <0.1	>480 <0.1
		2-Picoline	109-06-8	L					46 48	>480 <0.02
		3-Picoline	108-99-6	L					11 22	>480 <0.01
		Pyridine	110-86-1	L		17 34			>480 <0.01	>480 <0.01
		4-Vinylpyridine	100-43-6	L		64 7.3				
<b>274 Nitrogen, Others</b>										
		2,4-Dichloro-6-isopropyl-S-triazine 22%, Toluene 78%	mixture	L					>480 <0.1	>480 <0.1
		Ethyleneimine	151-56-4	L					59 0.56	>480 <0.01
		Pyrrolidine	123-75-1	L					413 9.2	413 9.2
<b>275 Oxygen, Epoxides</b>										
		Bisphenol-A diglycidyl ether	1675-54-3	L		>480 <0.01			>480 <0.01	>480 <0.01
		Epichlorohydrin	106-89-8	L		57* >50		372 0.51	>480 <0.014	>480 <0.014
		Ethylene oxide, 10% in HCFC 124	mixture	G						>480 <0.02
		Ethylene oxide gas	75-21-8	G	imm. 167	imm. 8.4	75 2.7	65 1.4	>480 <0.01	>480 <0.1
		Ethylene oxide liquid (0° C)	75-21-8	L					>480 <0.01	>480 <0.01
		Ethylene oxide liquid (-70° C)	75-21-8	L						>180 <0.02
		Phenyl glycidyl ether	122-60-1	L		>480 <0.1				
		1,2-Propylene oxide	75-56-9	L				14 1.02	>480 <0.002	>480 <0.002
<b>277 Oxygen, Furans</b>										
		2-Furaldehyde	98-01-1	L		245* 0.2		>480 0.01	>480 <0.01	>480 <0.01
<b>278 Oxygen, Others</b>										
		1,4-Dioxane	123-91-1	L			>480 0.001	>480 0.001	>480 <0.05	>480 <0.05
<b>280 Hydrazines</b>										
		1,1-Dimethylhydrazine	57-14-7	L		12* 6			>480* <5.0	>480* <5.0
		Hydrazine	302-01-2	L		437 0.2		283 1.6	>480 <0.05	>480 <0.05
		Hydrazine hydrate, 50%	10217-52-4	L						>480 <0.06
		Hydrazine hydrate, 85%	10217-52-4	L					440 0.06	440 0.06

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Methylhydrazine	60-34-4	L					>480 <0.01	>480 <0.01
<b>290 Hydrocarbons</b>										
<b>291 Aliphatic and Alicyclic, Saturated</b>										
		Cyclohexane	110-82-7	L				>480 0.04	>480 <0.003	>480 <0.003
		Diesel fuel	68334-30-5	L		48 0.5		>480 <0.001	>480 <0.03	>480 <0.03
		Diesel automotive test fuel	mixture	L	imm. 1.8	>480 <0.01				
		Fuel oil	mixture	L	imm. 1.8	>480 <0.01				
		Gasoline, leaded	86290-81-5	L				30 0.32	>480* nd	>480* nd
		Gasoline, Unleaded	86290-81-5	L		imm. 4.8	>480 <0.001	>480 <0.001	>480 <0.001	>480 <0.001
		n-Hexane	110-54-3	L	imm. high	10 0.28	>480 <0.001	>480 <0.001	>480 <0.001	>480 <0.01
		JP-4 jet fuel	Mixture	L		18 24			>480 <0.002	>480 <0.002
		Jet A fuel	8008-20-6	L		58 0.59	>480 <0.1		>480 <0.1	>480 <0.1
		JP-8 jet fuel	8008-20-6	L		58 0.59	>480 <0.1		>480 <0.1	>480 <0.1
		Kerosene	8008-20-6	L		58 0.59	>480 <0.1		>480 <0.1	>480 <0.1
		Mineral oil	8012-95-1	L		>480 <0.08				
		Mineral spirits	64475-85-0	L	imm. nm	>480* nd			>480 <0.01	>480 <0.01
		n-Octane	111-65-9	L					>480 <0.01	>480 <0.01
		Stoddard solvent	8052-41-3	L					>480 <0.001	>480 <0.001
		VM&P Naphtha	8032-32-4	L		18 1.3			>480 <0.006	>480 <0.006
<b>292 Aromatic</b>										
		Benzene	71-43-2	L		36 11.3	>480 0.001	>480 <0.05	>480 <0.001	>480 <0.001
		Benzo[a]pyrene	50-32-8	S		>480* <0.8				
		Cumene	98-82-8	L					>480 <0.01	>480 <0.01
		Ethyl benzene	100-41-4	L					>480 <0.001	>480 <0.001
		Styrene	100-42-5	L		12 75	>480 0.001	>480 <0.04	>480 <0.001	>480 <0.001
		Toluene	108-88-3	L	imm. 503	imm. 39	>480 <0.001	>480 0.003	>480 <0.001	>480 <0.02
		Xylene, mixed isomers	1330-20-7	L				291 0.12	>480 <0.004	>480 <0.004
<b>293 Aromatic Polynuclear</b>										
		Anthracene, sat. sol. in toluene	120-12-7	L			>480 <.01	>480 <0.01		
		Benzo[a]pyrene	50-32-8	S		>480* <0.8				

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Naphthalene	91-20-3	S				>480 <0.001		
		Naphthalene, sat. sol. in toluene	91-20-3	L			>480 <0.1			
<b>294 Aliphatic and Alicyclic, Unsaturated</b>										
		Crude oil	8002-05-9	L	imm. 3.3	>480 <0.01			>480 <0.04	>480 <0.04
<b>296 Polyenes</b>										
		1,3-Butadiene	106-99-0	G	imm. 12	>480 <0.02	>480 <0.001	>480 0.07	>480 <0.001	>480 <0.07
		1,3-Butadiene (0° C)	106-99-0	L						>180 <0.01
		d-Limonene	5989-27-5	L					>480 <0.001	>480 <0.001
<b>300 Peroxides</b>										
		Hydrogen peroxide, 30%	7722-84-1	L	>480 <0.1	>480 <0.1				>480 <0.04
		Hydrogen peroxide, 70%	7722-84-1	L	>480 <0.01				>480 <0.01	>480 <0.01
<b>310 Hydroxylic Compounds</b>										
<b>311 Aliphatic and Alicyclic, Primary</b>										
		Allyl alcohol	107-18-6	L				>480 0.04	>480 <0.1	>480 <0.1
		n-Butanol	71-36-3	L	imm. 1.6	>480 <0.001			>480 <0.002	>480 <0.002
		Ethanolamine	141-43-5	L				>480 <0.001	>480 <0.1	>480 <0.1
		Methanol	67-56-1	L	imm. 2.2	>480 <0.1	65 1.07	77 0.26	157 0.81	>480 <0.1
		Methyl Cellosolve®	109-86-4	L		89 5.77	>480 <0.001	>480 0.002	>480 <0.01	>480 <0.01
<b>312 Aliphatic and Alicyclic, Secondary</b>										
		Benzyl alcohol	100-51-6	L		>480 <0.1				
		Isoamyl alcohol	123-51-3	L		>480 <0.1				
		Isopropanol	67-63-0	L				>480 <0.001		
<b>313 Aliphatic and Alicyclic, Tertiary</b>										
		Acetone cyanohydrin	75-86-5	L					>480 <0.01	>480 <0.01
<b>314 Aliphatic and Alicyclic, Polyols</b>										
		Ethylene glycol	107-21-1	L	>480 <0.1	>480* <0.33		>480 <0.001	>480 <0.02	>480 <0.02
<b>315 Aliphatic and Alicyclic, Substituted</b>										
		2-Chloroethanol	107-07-3	L	imm. 3.1			>480 <0.001	>480 <0.008	>480 <0.008
		2,2,2-Trichloroethanol	115-20-8	L		19* 13.2			>480 <0.01	>480 <0.01
		2,2,2-Trifluoroethanol	75-89-8	L	imm. high				>480 <0.001	>480 <0.001
<b>316 Aromatic, Phenols</b>										
		4-Chlorophenol, sat. sol. in methanol	106-48-9	L					>480 <0.013	>480 <0.013
		Creosote	8001-58-9	L				>480 <0.001		

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK		
		m-Cresol 55%, p-Cresol 30%, Phenol 15%	mixture	L					>480 <0.09	>480 <0.09		
		Cresol, mixed isomers	1319-77-3	L	40* 0.4	69 8			>480 <0.01	>480 <0.01		
		o-Cresol	95-48-7	L	37 0.43	>480 0.17		180 2.7				
		4,6-Dinitro-o-cresol, sat. sol. in methanol	534-52-1	L					>480 <0.013	>480 <0.013		
		2-Nitrophenol (70° C)	88-75-5	L		imm. 4.53			208 0.17	208 0.17		
		Pentachlorophenol, sat. sol. in methanol	87-86-5	L					>480 <0.013	>480 <0.013		
		Phenol	108-95-2	L					>480 <0.03	>480 <0.07		
		Phenol, 85%-90%	108-95-2	L	imm. 0.4	>480 <0.1		238 4		>480 <0.07		
		Phenol, 88% (45° C)	108-95-2	L		303 0.91			135 2.26	150 2.8		
		2,2',6,6' Tetrachlorobisphenol A	79-95-8	S				>480 <0.1				
		<b>318 Aromatic, Others</b>										
				a-Phenethyl alcohol	98-85-1	L		>480 <0.1				
		<b>330 Elements</b>										
				Bromine	7726-95-6	L	imm. high			imm. 105	imm. >50	15 25
				Bromine, 10 gm/m <sup>2</sup> exposure	7726-95-6	L						>480 <0.1
Bromine, sat. vapor	7726-95-6			G						40 >0.6		
Chlorine, 20 ppm	7782-50-5			G	>480* nd	>480* nd						
Chlorine gas	7782-50-5			G	imm. >50	>480 <0.1	>480 <0.01	>480* 0.2	>480 <0.01	>480 <0.02		
Chlorine liquid (-70° C)	7782-50-5			L						>480 <0.01		
Iodine	7553-56-2			S	440* 30	>480* <70						
Mercury	7439-97-6			L		>480 <0.1		>480 <0.04	>480 <0.001	>480 <0.001		
<b>340 Inorganic Salts (Solutions)</b>												
				Ammonium fluoride, 40%	12125-01-8	L					>480 <0.01	>480 <0.01
		Lithium chloride, 20%	7447-41-8	L	>480 <0.1							
		Mercuric chloride, sat. sol. in water	7487-94-7	L		>480* <0.28		>480 <0.1	>480* <0.28	>480* <0.28		
		Potassium acetate, sat. sol. in water	127-08-2	L		>480* <0.51			>480* <0.49	>480* <0.49		
		Potassium chromate, sat. sol.in water	7789-00-6	L		>480* <0.51		>480 <0.1	>480* <0.51	>480* <0.51		
		Potassium permanganate	7722-64-7	L	>480 <0.1							
		Sodium fluoride, sat. sol.in water	7681-49-4	L		>480* <0.28						

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		Sodium hypochlorite, 13%	7681-52-9	L		>480 <0.1				
		Sodium hypochlorite, 17%	7681-52-9	L	>480 <0.1	>480 <0.1				
		Sodium hypochlorite, 30% chlorine	7681-52-9	L				>480 <0.1		
		Sodium hypochlorite, 5.25%	7681-52-9	L	>480 <0.1	>480 <0.1				
<b>345 Inorganic Cyano Compounds</b>										
		Hydrogen cyanide gas	74-90-8	G					>480 <0.02	>480 <0.01
		Hydrogen cyanide liquid	74-90-8	L	60* 0.11				105 1.7	>480 <0.01
		Potassium cyanide, 10%	151-50-8	L	>480 <0.1					
		Sodium cyanide	143-33-9	L					>480* <0.33	>480* <0.33
		Sodium cyanide, 45%	143-33-9	L				>480 <0.1		
		Sodium cyanide, sat. sol. in water	143-33-9	L		>480 <0.1				
<b>350 Inorganic Gases and Vapors</b>										
		Ammonia gas	7664-41-7	G	imm. 3.1	32 0.15	125 0.5	79 0.76	46 0.62	>480 <0.1
		Ammonia liquid	7664-41-7	L		>480 <0.1				>480 <0.1
		Arsine	7784-42-1	G					>480 <0.01	>480 <0.01
		Boron trichloride	10294-34-5	G					>480 <0.02	>480 <0.02
		Boron trifluoride	7637-07-2	G					>480 <0.1	>480 <0.1
		Carbon monoxide	630-08-0	G					330 0.1	330 0.1
		Chlorine, 20 ppm	7782-50-5	G	>480* nd	>480* nd				
		Chlorine dioxide, 150 ppm	10049-04-4	G					>480 <0.01	>480 <0.01
		Chlorine dioxide, 1000 ppm	10049-04-4	G					>480 <0.01	>480 <0.01
		Chlorine gas	7782-50-5	G	imm. >50	>480 <0.1	>480 <0.01	>480* 0.2	>480 <0.01	>480 <0.01
		Chlorine liquid (-70° C)	7782-50-5	L						>480 <0.01
		Chlorine trifluoride	7790-91-2	G					45 96	45 96
		Diborane, 10%	19287-45-7	G					>480 <0.005	>480 <0.005
		Fluorine	7782-41-4	G						>480 <0.002
		Hydrogen bromide	10035-10-6	G					>480 <0.1	>480 <0.1
		Hydrogen chloride gas	7647-01-0	G	imm. 9.3	>480 <0.1	195 0.33	>480 <0.1	>480 <0.1	>480 <0.1
		Hydrogen chloride liquid (-90° C)	7647-01-0	L						>180 <0.1

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		Hydrogen cyanide gas	74-90-8	G					>480 <.022	>480 <0.01		
		Hydrogen fluoride gas	7664-39-3	G	imm. 6	35 3		imm. high	135 6.7	>480 <0.1		
		Hydrogen fluoride liquid (0°C)	7664-39-3	L						290 1.3		
		Hydrogen fluoride liquid (4°C)	7664-39-3	L						290 1.3		
		Hydrogen selenide	7783-07-5	G						>480 <0.01	>480 <0.01	
		Hydrogen sulfide	7783-06-4	G						>480 <0.01	>480 <0.01	
		Nitric oxide	10102-43-9	G							>480 <0.04	
		Nitrogen dioxide	10102-44-0	G		>480 <0.001			14 >0.2			
		Nitrogen tetroxide	10544-72-6	G						90 >1.1	90 >1.1	
		Nitrogen tetroxide (0° C)	10544-72-6	L						>480 0.001	>480 0.001	
		Nitrogen tetroxide (21° C)	10544-72-6	L							450 0.2	
		Nitrogen trifluoride	7783-54-2	G						>480 <0.014	>480 <0.014	
		Nitrous oxide	10024-97-2	G						>480 <0.018	>480 <0.018	
		Phosgene	75-44-5	G					>480 <0.02	>480 <0.1	>480 <0.1	
		Phosphine	7803-51-2	G					imm. >0.11	>480 <0.01	>480 <0.01	
		Sulfur dioxide	7446-09-5	G	imm. >29	>480 <0.1			38* 2	>480 <0.01	>480 <0.01	
		Sulfur hexafluoride	2551-62-4	G						>480 <0.015	>480 <0.015	
		Sulfuryl chloride	7791-25-5	L						>480 <0.1	>480 <0.1	
		Tungsten hexafluoride	7783-82-6	G						>480 <0.026	>480 <0.026	
		<b>360 Inorganic Acid Halides</b>										
				Antimony pentachloride	7647-18-9	L		>480 <0.1		15 10		
				Boron trichloride	10294-34-5	G					>480 <0.02	>480 <0.02
				Boron trifluoride	7637-07-2	G					>480 <0.1	>480 <0.1
				Phosphorus oxychloride	10025-87-3	L				>480 <0.01	>480 <0.1	>480 <0.1
				Phosphorus trichloride	7719-12-2	L		20 28		>480 0.003	>480 <0.1	>480 <0.1
				Silicon tetrachloride	10026-04-7	L		80 7.8			>480 <0.1	>480 <0.1
				Sulfuryl chloride	7791-25-5	L					>480 <0.1	>480 <0.1
				Thionyl chloride	7719-09-7	L					35 2500	90 63.6

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Titanium tetrachloride	7550-45-0	L		15	>480		>480	>480
						73	<0.1		<0.1	<0.1
<b>365 Inorganic Acid Oxides</b>										
		Sulfur dioxide	7446-09-5	G	imm.	>480		38*	>480	>480
					>29	<0.1		2	<0.01	<0.01
		Sulfur trioxide	7446-11-9	L					90	90
									696	696
<b>370 Inorganic Acids</b>										
		Chlorosulfonic acid	7790-94-5	L		>480			180	>480
						<0.1			98	<0.1
		Chromic acid, 60-62%	1333-82-0	L	>480	>480				
					<0.1	<0.1				
		Fluoroboric acid, 48-50%	16872-11-0	L		>480				
						<0.1				
		Fluorosilicic acid	16961-83-4	L					>480	>480
									<0.1	<0.1
		Fluorosulfonic acid	7789-21-1	L					>480	>480
									<0.1	<0.1
		Hydriodic acid, 47%	10034-85-2	L		>480				
						<0.1				
		Hydriodic acid, 57%	10034-85-2	L					>480	>480
									<0.1	<0.1
		Hydrochloric acid, 37%	7647-01-0	L	86	>480	>480	>480	>480	>480
					1.1	<0.1	<0.1	<0.1	<0.02	<0.02
		Hydrofluoric acid, 48%-51%	7664-39-3	L	>480	>480		>480	>480	>480
					0.08	<0.1		<0.1	<0.02	<0.02
		Hydrofluoric acid, 70%	7664-39-3	L		imm.		39		>480
						0.6		1.2		<0.1
		Hydrofluoric acid, 92% (90°C)	7664-39-3	L					67*	67*
									2.8	2.8
		Hydrogen bromide	10035-10-6	G					>480	>480
									<0.1	<0.1
		Hydrogen cyanide liquid	74-90-8	L	60*				105	>480
					0.11				1.7	<0.01
		Hydrogen fluoride liquid (0°C)	7664-39-3	L						290
										1.3
		Hydrogen fluoride liquid (4°C)	7664-39-3	L						290
										1.3
		Nitric acid, 70%	7697-37-2	L	410*	>480	>480	>480	>480	>480
					0.7	<0.1	<.013	<0.001	<0.1	<0.1
		Nitric acid, 90%	7697-37-2	L					>480	>480
									<0.033	<0.033
		Nitric acid, red fuming	52583-42-3	L				14		390
								>50		3.6
		Oleum, 103%	8014-95-7	L						>480
										<0.1
		Oleum, 27-33% free SO <sub>3</sub>	8014-95-7	L		450				
						0.005				
		Oleum, 40% free SO <sub>3</sub>	8014-95-7	L	398	>480			>480	>480
					0.2	<0.04			<0.04	<0.04
		Oleum, 65% free SO <sub>3</sub>	8014-95-7	L						>480
										<0.1
		Perchloric acid, 70%	7601-90-3	L					>480	>480
									<0.1	<0.1
		Phosphoric acid, 85%	7664-38-2	L		>480		>480	>480	>480
						<0.1		<0.1	<0.1	<0.1

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Sulfuric acid	7664-93-9	L	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
<b>380 Inorganic Bases</b>										
		Ammonia liquid	7664-41-7	L		>480 <0.1				>480 <0.1
		Ammonium hydroxide, 28%-30%	1336-21-6	L	imm. 62	>480 <0.1		>480 <0.1	160 4.7	>480 <0.1
		Lithium hydroxide, 20%	1310-65-2	L	>480 <0.1					
		Potassium hydroxide	1310-58-3	L					>480 <0.008	>480 <0.008
		Potassium hydroxide, 45%	1310-58-3	L					>480 <0.008	>480 <0.008
		Sodium hydroxide, conc.	1310-73-2	S				>480 <0.1		
		Sodium hydroxide, 50%	1310-73-2	L	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Sodium hydroxide, sat. sol. in water	1310-73-2	L	>480 <0.1	>480 <0.1				
<b>390 Ketones</b>										
<b>391 Aliphatic and Alicyclic</b>										
		Acetone	67-64-1	L	imm. 10	12 3.2	433 0.08	>480 0.06	>480 <0.001	>480 <0.01
		Chloroacetone	78-95-5	L		>480 0.08				
		Cyclohexanone	108-94-1	L					>480 <0.01	>480 <0.01
		1,3-Dichloroacetone (40° C)	534-07-6	L					>480 <0.1	>480 <0.1
		Methyl ethyl ketone	78-93-3	L		10 13		71 0.37	>480 <0.007	>480 <0.007
		Methyl isobutyl ketone	108-10-1	L				>480 <0.05	>480 0.001	>480 0.001
		1,1,1-Trichloroacetone	921-03-9	L				>480 <0.05		
<b>430 Nitriles</b>										
<b>431 Aliphatic and Alicyclic</b>										
		Acetone cyanohydrin	75-86-5	L					>480 <0.01	>480 <0.01
		Acetonitrile	75-05-8	L	imm. 16	12 2.8	14 180	157 0.19	>480 <0.003	>480 <0.1
		Acrylonitrile	107-13-1	L	imm. 10.6	50 1.2		12 0.57	>480 <0.001	>480 <0.001
		Adiponitrile	111-69-3	L					>480 <0.1	>480 <0.1
		2-Methylglutaronitrile, 87%	4553-62-2	L					>480 <0.1	>480 <0.1
		cis-2-Pentenenitrile, 70%	25899-50-7	L					>480 <0.001	>480 <0.001
		3-Pentenenitrile	4635-87-4	L					>480 <0.001	>480 <0.001
<b>432 Aromatic</b>										
		Benzonitrile	100-47-0	L				>480 <0.001	>480 <0.004	>480 <0.004

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>440 Nitro Compounds</b>										
<b>441 Unsubstituted</b>										
		Nitrobenzene	98-95-3	L	imm.	102	>480	>480	>480	>480
					18	2.3	<0.001	<0.001	<0.01	<0.01
		Nitromethane	75-52-5	L				229	>480	>480
								0.97	<0.005	<0.005
		2-Nitropropane	79-46-9	L					>480	>480
									<0.01	<0.01
<b>442 Substituted</b>										
		Dinitro-o-cresol, sat. sol. in methanol	534-52-1	L					>480	>480
									<0.013	<0.013
		o-Nitrochlorobenzene	88-73-3	S	15	237				
					4.1	0.61				
		o-Nitrochlorobenzene (35° C)	88-73-3	L		80				
						2.4				
		p-Nitrochlorobenzene	100-00-5	S	imm.	476				
					2.3	0.11				
		p-Nitrochlorobenzene (85° C)	100-00-5	L		321				
						1.5				
		2-Nitrophenol (70° C)	88-75-5	L		imm.			208	208
						4.53			0.17	0.17
		o-Nitrotoluene	88-72-2	L		317				
						0.41				
		p-Nitrotoluene	99-99-0	S	imm.	123				
					14	2.2				
		p-Nitrotoluene (60° C)	99-99-0	L		imm.				
						42				
<b>450 Nitroso Compounds</b>										
		Dimethyl nitrosamine	62-75-9	L				>480		
								<0.001		
<b>460 Organo-Phosphorus Compounds</b>										
<b>462 Derivatives of Phosphorus-based acids</b>										
		Diazinon, 25%	333-41-5	L			>480			
							<0.1			
		Chlorpyrifos, 7%	2921-88-2	L			>480			
							<0.1			
		Ethyl parathion	56-38-2	L					>480	>480
									<0.01	<0.01
		Malathion	121-75-5	L					>480	>480
									<0.013	<0.1
		Malathion, 50% in water	121-75-5	L			>480			
							<0.1			
		Malathion, 50% in methanol	121-75-5	L					>480	>480
									<0.1	<0.1
		Sarin (GB) Chemical Agent	107-44-8	L	See "Chemical Warfare Agents" Data Table .					
		Soman (GD) chemical agent	96-64-0	L	See "Chemical Warfare Agents" Data Table .					
		Tabun	77-81-6	L	See "Chemical Warfare Agents" Data Table .					
		Tetraethyl lead	78-00-2	L					>480	>480
									<0.07	<0.07
		Trimethyl phosphate	512-56-1	L					>480	>480
									<0.1	<0.1
		Trimethyl phosphite	121-45-9	L		10			>480	>480
						0.5			<0.1	<0.1

Permeation Data Table for Selected Tychem® Fabrics

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
		Vinylmagnesium chloride, 16.5%	3536-96-7	L					>480	>480
		VX Nerve agent	50782-69-9	L	See "Chemical Warfare Agents" Data Table .					
<b>470 Organo-Metallic Compounds</b>										
		Lewisite (L) Chemical Agent	541-25-3	L	See "Chemical Warfare Agents" Data Table .					
		Nickel carbonyl	13463-39-3	L						>480 <0.04
<b>480 Organo-Silicon Compounds</b>										
		Dichlorosilane	4109-96-0	G					>480 <0.1	>480 <0.1
		Dimethyldichlorosilane	75-78-5	L		>480 <0.1				>480 <0.1
		Hexamethyldisilazane	999-97-3	L		>480 <0.03			>480 <0.02	>480 <0.02
		Methyl trichlorosilane	75-79-6	L					>480 <0.1	>480 <0.1
		Silane	7803-62-5	G					>480 <0.1	>480 <0.1
		Silicon tetrachloride	10026-04-7	L		80 7.8			>480 <0.1	>480 <0.1
		Tetraethoxysilane	78-10-4	L					>480 <0.014	>480 <0.014
		Trichlorophenylsilane	98-13-5	L		>480 <0.1				>480 <0.1
		Trichlorosilane	10025-78-2	L		30 59			>480 <0.022	>480 <0.022
		Trichlorovinylsilane	75-94-5	L		75 3.6				
<b>500 Sulfur Compounds</b>										
<b>501 Thiols</b>										
		Methyl mercaptan	74-93-1	G			>480 0.05	>480 0.05	>480 <0.001	>480 <0.001
		Phenyl mercaptan	108-98-5	L		19 3.6			>480 <0.02	>480 <0.02
		Thioglycolic acid	68-11-1	L					>480 <0.1	>480 <0.1
<b>502 Sulfides and Disulfides</b>										
		Carbon disulfide	75-15-0	L	imm. high	imm. >50	>480 0.07	>480 0.05	>480 <0.001	>480 <0.02
		Dimethyl sulfide	75-18-3	L				26 0.58		
		Disulfur dichloride	10025-67-9	L			>480 <0.01		>480 <0.01	>480 <0.01
		Hydrogen sulfide	7783-06-4	G					>480 <0.01	>480 <0.01
		Sulfur dichloride, 80%	10545-99-0	L					70 6	>480 <0.1
		Sulfur dichloride, 99%	10545-99-0	L						440 0.3
		Sulfur mustard (HD) chemical agent	505-60-2	L	See "Chemical Warfare Agents" Data Table .					
<b>503 Sulfones and Sulfoxides</b>										
		Dimethyl sulfoxide	67-68-5	L				36 1.9	>480 0.003	>480 0.003

**Permeation Data Table for Selected Tychem® Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR and Tychem® LV	Tychem® TK
<b>504 Sulfonic Acids</b>										
		Chlorosulfonic acid	7790-94-5	L		>480 <0.1			180 98	>480 <0.1
		Methanesulfonic acid	75-75-2	L		>480 <0.1				
		Trifluoromethane sulfonic acid	1493-13-6	L		>480 <0.01			>480 <0.01	>480 <0.01
<b>505 Sulfonyl Chlorides</b>										
		Benzene sulfonyl chloride	98-09-9	L					>480 <0.1	>480 <0.1
<b>507 Sulfonates, Sulfates, and Sulfites</b>										
		Diethyl sulfate	64-67-5	L						>480 <0.1
		Dimethyl sulfate	77-78-1	L		>480 <0.1			>480 <0.001	>480 <0.001
<b>509 Other</b>										
		Sulfur hexafluoride	2551-62-4	G					>480 <0.015	>480 <0.015
<b>550 Organic Salts (Solutions)</b>										
		Sodium methylate, 50% in methanol	124-41-4	L					>480 <0.1	>480 <0.1
<b>590 Miscellaneous (Not classified)</b>										
		Black Liquor	308074-23-9	L	>480 <0.1	>480 <0.1			>480 <0.1	>480 <0.1
		Boron trifluoride etherate	109-63-7	L						>480 <0.1
		Chemidize 727 ND	mixture	L		>480 <0.06				
		Crude oil	8002-05-9	L	imm. 3.3	>480 <0.01			>480 <0.04	>480 <0.04
		2,4-Dichloro-6-isopropyl-S-triazine 22%, Toluene 78%	mixture	L					>480 <0.1	>480 <0.1
		DuPont Activator 193S	mixture	L	>480 <0.1					
		DuPont Activator 4505S	mixture	L	>480 <0.01					
		DuPont Activator 4507S	mixture	L	>480 <0.1					
		Ethyl benzene 80%, 4,6-Dinitro-o-cresol 20%	mixture	L		45* 18				
		Gasohol	mixture	L		>480 <0.1				
		Glade Intech 200	mixture	L		>480 <0.1				
		Green liquor	68131-30-6	L	>480 <0.1	>480 <0.1			>480 <0.1	>480 <0.1
		Methyl ethyl ketoxime	96-29-7	L		>480 <0.1			>480 <0.1	>480 <0.1
		t-Sodium-amylate / t-amyl alcohol	mixture	S					120 4.9	120 4.9
		Tetramethyltin (0.5%) in n-pentane	mixture	L					>480 <0.006	>480 <0.006
		White liquor	68131-33-9	L	>480 <0.1	>480 <0.1			>480 <0.1	>480 <0.1
<b>595 Chemical Warfare Agents</b>					See "Chemical Warfare Agents" Data Table .					

**NBC Safety**