

# PERMEATION GUIDE FOR DUPONT™ TYCHEM® PROTECTIVE FABRICS

Effective January 2003. This guide replaces all previously published until superseded.

## PROTECTION AGAINST A BROAD RANGE OF CHEMICALS

### DuPont™ Tychem® Fabrics Included in this Permeation Guide

#### Tychem® Limited Use Fabrics

- Tychem® QC
- Tychem® CPF 1
- Tychem® SL
- Tychem® CPF 2
- Tychem® 7500
- Tychem® F
- Tychem® CPF 3
- Tychem® BR
- Tychem® CPF 4
- Tychem® Responder®
- Tychem® TK
- Tychem® Reflector®



#### Tychem® Reusable Fabrics

- DuPont™ StaSafe® CPE
- Butyl
- DuPont™ StaSafe® PVC
  - FlexLite Orange
  - HiGlo
  - GraLite 20
  - WinterGlo 20



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#### 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.

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StaSafe® is a registered trademark of Standard Safety Equipment Company.

# Permeation Guide for DuPont™ Tychem® Protective Fabrics

Effective January 2003. This guide replaces all previously published until superseded.

## How to Use this Permeation Guide

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### To Find Permeation Test Results

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
- Whether the chemical has been tested (T) or not tested (nt) on Tychem® Limited-Use and/or Tychem® Reusable Fabrics

2. Locate the subclass(es) of the chemical in the permeation data table(s). There are two separate data tables, one for limited use fabrics, and one for reusable fabrics.
3. If the chemical has been tested, find the chemical name under its sub-class(es) and read across to find the permeation test results for the chemical.
4. If the chemical has not been tested, the subclass number is provided so users may view permeation data for tested chemicals in the same subclass.

## Independent Testing

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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 1-800-931-3456.

## What is Permeation?

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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.

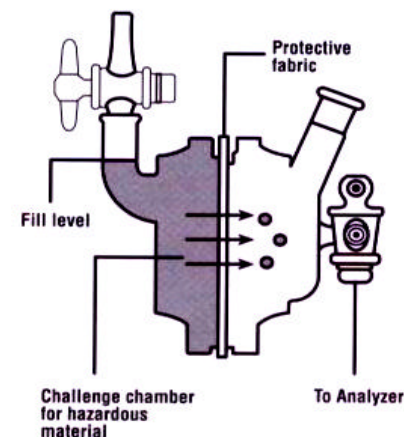
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## How Permeation Tests Are Conducted

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

## 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 sur-

face 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.

**Physical phase:** The phase of the challenge chemical during the test being reported: solid-S, liquid-L, gas-G, mixture-M.

**CAS:** Chemical Abstract System

**N/A:** Not applicable

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## 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

- 221 Formates
- 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
- 246 Vinylic

### 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
- 392 Aromatic

### 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.

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Permeation Guide for DuPont™ Tychem® Fabrics. Effective January 2003.  
**ASTM F1001 List of Challenge Chemicals (Permeation Test Method ASTM F739)**  
**Standardized Breakthrough Times for DuPont™ Tychem® Limited Use Fabrics**

Sub-Class	Chemical Name	CAS Number	Phase	Standardized Breakthrough Time (Minutes)											
				Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR / Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
391	Acetone	67-64-1	L	imm.	imm.	12	12	433	>480	>480	>480	>480	>480	>480	>480
431	Acetonitrile	75-05-8	L	imm.	imm.	12	12	14	157	imm.	>480	>480	>480	>480	>480
350	Ammonia gas	7664-41-7	G	imm.	nt	32	32	125	79	12	46	>480	>480	>480	>480
296	1,3-Butadiene	106-99-0	G	imm.	nt	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
502	Carbon disulfide	75-15-0	L	imm.	imm.	imm.	imm.	>480	>480	16	>480	>480	>480	>480	>480
330 / 350	Chlorine gas	7782-50-5	G	imm.	nt	>480	>480	>480	>480*	>480	>480	>480	>480	>480	>480
261	Dichloromethane	75-09-2	L	imm.	imm.	imm.	imm.	imm.	imm.	imm.	432	114	>480	>480	>480
142	Diethylamine	109-89-7	L	imm.	imm.	12	12	>480	>480	>480	>480	>480	>480	>480	>480
132	N,N-Dimethylformamide	68-12-2	L	imm.	25	95	95	>480	>480	>480	>480	>480	>480	>480	>480
222	Ethyl acetate	141-78-6	L	imm.	imm.	14	14	>480	>480	>480	>480	>480	>480	>480	>480
275	Ethylene oxide gas	75-21-8	G	imm.	nt	imm.	imm.	75	65	>480	>480	305	>480	>480	>480
291	n-Hexane	110-54-3	L	imm.	imm.	10	10	>480	>480	>480	>480	>480	>480	>480	>480
350	Hydrogen chloride gas	7647-01-0	G	imm.	nt	>480	>480	195	>480	nt	>480	>480	>480	>480	>480
311	Methanol	67-56-1	L	imm.	imm.	>480	>480	65	77	imm.	157	>480	>480	>480	>480
261	Methyl chloride	74-87-3	G	imm.	nt	>480	>480	>480	>480	nt	>480	>480	>480	>480	>480
441	Nitrobenzene	98-95-3	L	imm.	imm.	102	102	>480	>480	>480	>480	>480	>480	>480	>480
380	Sodium hydroxide, 50%	1310-73-2	L	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
370	Sulfuric acid, 98%	7664-93-9	L	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
264	1,1,2,2-Tetrachloroethylene	127-18-4	L	imm.	imm.	imm.	imm.	>480	>480	>480	>480	>480	>480	>480	>480
241	Tetrahydrofuran	109-99-9	L	imm.	imm.	imm.	imm.	314	464	>480	>480	>480	>480	>480	>480
292	Toluene	108-88-3	L	imm.	imm.	imm.	imm.	>480	>480	>480	>480	>480	>480	>480	>480

> = greater than    imm. = immediate (<10 minutes)    nt = not tested    L = Liquid    G = Gas

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Permeation Guide for DuPont™ Tychem® Fabrics. Effective January 2003.  
**ASTM F1001 List of Challenge Chemicals (Permeation Test Method ASTM F739)**  
**Standardized Breakthrough Times for DuPont™ Tychem® Reusable Fabrics**

Sub-Class	Chemical Name	CAS Number	Phase	Standardized Breakthrough Time (Minutes)					
				DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
						FlexLite Orange	GraLite 20	HiGlo	WinterGlo 20
391	Acetone	67-64-1	L	35*	125	nt	imm.*	nt	imm.*
431	Acetonitrile	75-05-8	L	>480	120	nt	imm.*	nt	imm.*
350	Ammonia gas	7664-41-7	G	120*	nt	nt	25*	nt	13*
296	1,3-Butadiene	106-99-0	G	nt	nt	nt	nt	nt	nt
502	Carbon disulfide	75-15-0	L	12*	imm.	nt	imm.	nt	imm.
330 / 350	Chlorine gas	7782-50-5	G	>480	nt	nt	160	nt	180
261	Dichloromethane	75-09-2	L	imm.	imm.	nt	imm.	nt	imm.
142	Diethylamine	109-89-7	L	22*	imm.	nt	imm.	nt	imm.
132	N,N-Dimethylformamide	68-12-2	L	112*	>480	nt	20*	nt	12*
222	Ethyl acetate	141-78-6	L	30*	28	nt	imm.*	nt	imm.*
275	Ethylene oxide gas	75-21-8	G	nt	nt	nt	nt	nt	nt
291	n-Hexane	110-54-3	L	>480	imm.	nt	20*	nt	12*
350	Hydrogen chloride gas	7647-01-0	G	>180*	nt	nt	nt	nt	>480
311	Methanol	67-56-1	L	>480	304	nt	24*	nt	16*
261	Methyl chloride	74-87-3	G	nt	nt	nt	nt	nt	nt
441	Nitrobenzene	98-95-3	L	140*	>480	nt	31*	nt	21*
380	Sodium hydroxide, 50%	1310-73-2	L	>480	>480	nt	180	>480	>480
370	Sulfuric acid, 98%	7664-93-9	L	>480	160	55	110	110	130
264	1,1,2,2-Tetrachloroethylene	127-18-4	L	65*	imm.	nt	12*	nt	imm.*
241	Tetrahydrofuran	109-99-9	L	16*	imm.	nt	imm.	nt	imm.*
292	Toluene	108-88-3	L	28*	imm.	nt	imm.	nt	imm.*

> = greater than    imm. = immediate (<10 minutes)    nt = not tested    L = Liquid    G = Gas

\*Actual breakthrough time; standardized data not available.

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### Chemical Warfare Agents

Permeation test results are shown as follows:													
Average Breakthrough Time (minutes)													
Minimum Detectable Permeation Rate (µg/cm <sup>2</sup> /min)													
> = greater than < = less than nt = not tested													
Agent	Common Name	CAS Number	Protocol	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
GA	Tabun	77-81-6	DN5	nt	nt	nt	nt	nt	>720 8 X 10 <sup>-7</sup>	nt	>720 8 X 10 <sup>-7</sup>	>720 8 X 10 <sup>-7</sup>	>720 8 X 10 <sup>-7</sup>
			DN6	nt	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	nt	nt	nt	>720 4 X 10 <sup>-7</sup>	nt
GB	Sarin	107-44-8	DN5	360 1 X 10 <sup>-5</sup>	360 1 X 10 <sup>-5</sup>	nt	nt	120 0.004	>720 4.2 X 10 <sup>-7</sup>	360 1 X 10 <sup>-5</sup>	>720 4.2 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>
			DN6	nt	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	>720 4 X 10 <sup>-4</sup>	nt	>720 4 X 10 <sup>-4</sup>	>720 1 X 10 <sup>-6</sup>	>720 4 X 10 <sup>-4</sup>
GD	Soman	99-64-0	DN5	nt	nt	nt	nt	>480 0.004	>720 4.2 X 10 <sup>-7</sup>	nt	>720 4.2 X 10 <sup>-7</sup>	>720 2.1 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>
			DN6	nt	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	nt	nt	nt	>720 4 X 10 <sup>-7</sup>	nt
HD	Sulfur Mustard	505-60-2	DN3	180 0.002	180 0.002	nt	nt	120 0.004	>720 4.2 X 10 <sup>-7</sup>	180 0.002	>720 4.2 X 10 <sup>-7</sup>	>720 0.00021	>720 4.2 X 10 <sup>-7</sup>
			DN4	nt	nt	>720 <0.002	>720 <0.002	nt	>720 8 X 10 <sup>-4</sup>	nt	>720 8 X 10 <sup>-4</sup>	>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>	>360 8 X 10 <sup>-4</sup>	nt	nt	120 0.005	>720 2.5 X 10 <sup>-5</sup>	>360 8 X 10 <sup>-4</sup>	>720 2.5 X 10 <sup>-5</sup>	>720 0.0000125	>720 2.5 X 10 <sup>-5</sup>
			DN4	nt	nt	360 0.006	360 0.006	nt	120 7 X 10 <sup>-5</sup>	nt	120 7 X 10 <sup>-5</sup>	>720 8 X 10 <sup>-4</sup>	120 7 X 10 <sup>-5</sup>
VX	VX Nerve Agent	50782-69-9	DN5	>720 5 X 10 <sup>-7</sup>	>720 5 X 10 <sup>-7</sup>	nt	nt	>480 0.0042	>720 4.2 X 10 <sup>-7</sup>	>720 5 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>	>720 2.1 X 10 <sup>-7</sup>	>720 4.2 X 10 <sup>-7</sup>
			DN6	nt	nt	>720 2 X 10 <sup>-6</sup>	>720 2 X 10 <sup>-6</sup>	nt	>720 8 X 10 <sup>-7</sup>	nt	>720 8 X 10 <sup>-7</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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**Data Table for Tychem® Limited-Use Fabrics**

Permeation test results are listed as follows:

Average Standardized Breakthrough Time (minutes)  
 Average Steady-State Permeation Rate ( $\mu\text{g}/\text{cm}^2/\text{min}$ )

Symbols and Abbreviations used in data table:

> = more than    < = less than    imm. = immediate (less than 10 minutes)  
 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®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
<b>100 Carboxylic acids</b>																
<b>102 Aliphatic and Alicyclic, Unsubstituted</b>																
		Acetic acid	64-19-7	L	imm. 3		>480 <0.1	>480 <0.1		>480 0.08	84 1.21	339 1.3	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Acetic acid, 84%	64-19-7	L									>480 <0.1			
		Acrylic acid	79-10-7	L	imm. 5.4		>480 <0.001	>480 <0.001		>480 <0.001		270 1.6	>480 <0.001	>480 <0.1	>480 <0.06	270 1.6
		Butyric acid	107-92-6	L										>480 <0.1		
		Formic acid	64-18-6	L	imm. 0.33		>480 <0.1	>480 <0.1		260 0.24		>480 <0.01	>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.01
		Methacrylic acid	79-41-4	L								>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01
		Octanoic acid	124-07-2	L									>480 <0.1			
		Propionic acid	79-09-4	L										>480 <0.1		
<b>103 Aliphatic and Alicyclic, Substituted</b>																
		Chloroacetic acid	79-11-8	L						>480 <0.1		>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		Chloroacetic acid (65° C)	79-11-8	L										60 63.7		
		Chloroacetic acid, 75%-80%	79-11-8	L	370 1		>480 <0.1	>480 <0.1				>480 <0.01	>480 <0.1	>480 <0.01	>480 <0.01	>480 <0.01
		Glycolic acid, sat. sol. in water	79-14-1	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		Thioglycolic acid	68-11-1	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		Trichloroacetic acid	76-03-9	L						>480 <0.1						
		Trifluoroacetic acid	76-05-1	L			>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1		



**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®	
<b>104 Aliphatic and Alicyclic, Polybasic</b>																	
		Maleic acid, sat.	110-16-7	L										>480 <0.1			
		Oxalic acid, 10.5%	144-62-7	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		Oxalic acid dihydrate, sat. sol.	6153-56-6	L							>480 <0.1						
<b>110 Acid Halides, Carboxylic</b>																	
<b>111 Aliphatic and Alicyclic</b>																	
		Acetyl chloride	75-36-5	L				37*	37*			181	37*	>240	>480	181	
												2	1.1	<0.1	<0.05	2	
		Chloroacetyl chloride	79-04-9	L				120	120			77	160	120	>480	160	160
												15.6	15.6	1.03	23.2	15.6	<0.1
		Dichloroacetyl chloride	79-36-7	L								100		100	>480	100	
												20.5		20.5	<0.01	20.5	
		Trifluoroacetyl chloride	354-32-5	G										>480			
														<0.1			
<b>112 Aromatic</b>																	
		Benzoyl chloride	98-88-4	L								>480	>480	>480	>480	>480	
												<0.001	<0.05	<0.05	<0.05	<0.05	
<b>113 Chloroformates</b>																	
		Benzyl chloroformate	501-53-1	L								>480					
												<0.1					
		Methyl chloroformate	79-22-1	L								>480		>480	>480	>480	
												0.011		0.011	0.011	0.011	
<b>120 Aldehydes</b>																	
<b>121 Aliphatic and Alicyclic</b>																	
		Acetaldehyde	75-07-0	L					109	109		>480	>480	>480	>480	>480	
												0.56	0.56	<0.01	<0.1	<0.1	<0.01
		Acrolein	107-02-8	L				60	60		63	>480	60	>480	>480	>480	
												4.1	4.1	<0.02	4.1	<0.02	<0.02
		Acrolein, 59%	107-02-8	L				imm.	imm.			>480	imm.	>480	>480	>480	
												5.3	5.3	<0.1	5.3	<0.1	<0.1
		n-Butyraldehyde	123-72-8	L	imm.			50	50			>480	50	>480	>480	>480	
												22	6.1	6.1	<0.007	6.1	<0.1
		trans-Crotonaldehyde	123-73-9	L				38	38			>480	38	>480	>480	>480	
												0.77	0.77	<0.006	0.77	<0.01	<0.006
		Formaldehyde gas, 100 ppm	50-00-0	G								>480		>480	>480	>480	
												<0.01		<0.01	<0.01	<0.01	

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
		Formaldehyde gas, 1000 mg/m <sup>3</sup>	50-00-0	G										>480 <0.1		
		Formalin (Formaldehyde 37%)	50-00-0	L	imm. 0.31		>480 <0.1	>480 <0.1		>480 <0.001	>480 <0.1	>480 <0.09	>480 <0.1	>480 <0.09	>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 <0.04				>480 <0.1	>480 <0.04	>480 <0.1	>480 <0.1	>480 <0.1
		Gluteraldehyde, 50%	111-30-8	L		>480 <0.1	>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Propionaldehyde	123-38-6	L										>480 <0.1		
<b>122 Aromatic</b>																
		Benzaldehyde	100-52-7	L										>480 <0.1		
		2-Furaldehyde	98-01-1	L			245* 0.2	245* 0.2		>480 0.01	>480 <0.1	>480 <0.01	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	64* 2.04			>480 <0.1	>480 <0.006	64* 2.04	>480 <0.1	>480 <0.006	>480 <0.006
		N,N-Dimethylformamide	68-12-2	L	imm. 0.72	25 0.26	95 0.11	95 0.11	>480 <0.001	>480 <0.01	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.1
		n-Methyl-2-pyrrolidone	872-50-4	L			>480 <0.06	>480 <0.06	>480 <0.001	>480 <0.001		>480 <0.01	>480 <0.1	>480 <0.01	>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 <0.01		>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		N-Methylmethacrylamide	3887-02-3	L										>480 <0.1		
<b>140 Amines</b>																
<b>141 Aliphatic and Alicyclic, Primary</b>																
		n-Butylamine	109-73-9	L							>480 <0.1	>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01
		tert-Butylamine	75-64-9	L								>480 <0.03		>480 <0.03	>480 <0.03	>480 <0.03
		Cyclohexylamine	108-91-8	L										>480 <0.1		

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®		
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
		Ethanolamine	141-43-5	L						>480 <0.001	>480 <0.1	>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		Ethylamine (15° C)	75-04-7	L								361 1.49		361 1.49	>480 <0.02	361 1.49	
		Ethylamine 70% w/w	75-04-7	L										>240 <0.1			
		Isopropylamine	75-31-0	L							15 22	>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01	
		Methylamine	74-89-5	G								105 40	240 0.89	>480 <0.1	>480 <0.06	105 40	
		Methylamine, 40% sol.	74-89-5	L							140 8.04	261 1.8		261 1.8	261 1.8	261 1.8	
		Methylamine, 50%	74-89-5	L								232 2.2		232 2.2	232 2.2	232 2.2	
		Nonylamine	112-20-9	L											>480 <0.1		
		n-Propylamine	107-10-8	L								100 1.3					
		<b>142 Aliphatic and Alicyclic, Secondary</b>															
		Diethanolamine	111-42-2	L							>480 <0.1			>480 <0.1			
		Diethylamine	109-89-7	L	imm. 64	imm >24	12 >50	12 >50	>480 <0.001	>480 <0.001	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Dimethylamine	124-40-3	G							>480 <0.01				>480 <0.05		
		Hexamethyldisilazane	999-97-3	L			>480 <0.03	>480 <0.03				>480 <0.02	>480 <0.03	>480 <0.1	>480 <0.02	>480 <0.02	
		Morpholine	110-91-8	L			153 1.38	153 1.38				>480 <0.1	153 1.38	>480 <0.1	>480 <0.1	>480 <0.1	
<b>143 Aliphatic and Alicyclic, Tertiary</b>																	
		Triethylamine	121-44-8	L			>480* <2	>480* <2				>480 <0.1	>480* <2	>480 <0.1	>480 <0.1	>480 <0.1	
		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	>480 0.09	29 65.5	>480 <0.05	36 1.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Benzidine, 25% in Methanol	92-87-5	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01	

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR	Tychem®	Tychem®	Tychem®	Tychem®
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	and Tychem® LV	CPF 4	Responder®	TK
		Benzidine, 75% in Methanol	92-87-5	L											>480 <0.1
		4-Chloroaniline	106-47-8	S							>480 <0.09		>480 <0.09	>480 <0.09	>480 <0.09
		4-Chloroaniline (70° C)	106-47-8	L			imm. 90	imm. 90		344 9.4	344 9.4	imm. 90	344 9.4	344 9.4	344 9.4
		3,4-Dichloroaniline	95-76-1	S							>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001
		3,4-Dichloroaniline (70°C)	95-76-1	L			imm. 17	imm. 17			284 2.4	imm. 17	284 2.4	284 2.4	284 2.4
		Diethyl-m-toluidine crude	91-67-8	L			>480 <0.1	>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	>480 <0.1	>480 <0.1
		4,4'-Methylene dianiline,15% sol'n. in water	101-77-9	L									>480 <0.1		
		m-Toluidine	108-44-1	L			>480 <0.001	>480 <0.001				>480 <0.001	>480 <0.001		
		o-Toluidine	95-53-4	L	imm. 1		255* 0.36	255* 0.36		>480 <0.001	>480 <0.001	>480 <0.1	>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	>480 <0.1				>480 <0.1	>480 <0.1		
		N,N-Dimethylaniline	121-69-7	L							>480 <0.013		>480 <0.013	>480 <0.013	>480 <0.013
<b>148 Aliphatic and Alicyclic Polyamines</b>															
		Diethylenetriamine	111-40-0	L							>480 <0.01		>480 <0.01	>480 <0.1	>480 <0.01
		Ethylenediamine	107-15-3	L	201* 2.9		>480 <0.01	>480 <0.01		>480 <0.001		>480 <0.01	>480 <0.1		
		1,6-Hexamethylenediamine (45° C)	124-09-4	L							>480 <0.01		>480 <0.01	>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	>480 <0.01	>480 <0.01
		Benzidine, 75% in Methanol	92-87-5	L										>480 <0.1	

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
		4,4'-Methylene bis (o-chloroaniline), sat. sol. in methanol	101-14-4	L			>480	>480				>480	>480	>480	>480	>480	
							<0.1	<0.1				<0.1	<0.1	<0.1	<0.1	<0.1	
		4,4'-Methylene dianiline	101-77-9	L											>480	>480	
															<0.1	<0.1	
		4,4'-Methylene dianiline, 15% sol'n. in MEK	101-77-9	L								>480	>480	>480	>480	>480	
												<0.1	<0.1	<0.1	<0.1	<0.1	
		4,4'-Methylene dianiline, 15% sol'n. in water	101-77-9	L									>480	>480	>480	>480	
													<0.1	<0.1	<0.1	<0.1	
<b>160 Anhydrides</b>																	
<b>161 Aliphatic and Alicyclic</b>																	
		Acetic anhydride	108-24-7	L			>480	>480				>480	>480	>480	>480	>480	
							<0.1	<0.1				<0.1	<0.001	<0.1	<0.1	<0.001	<0.1
		Maleic anhydride, sat.	108-31-6	L										>480	>480	>480	
														<0.1	<0.1	<0.1	
<b>210 Isocyanates</b>																	
<b>211 Aliphatic and Alicyclic</b>																	
		Cyclohexyl isocyanate	3173-53-3	L			>480	>480						>480	>480	>480	
							<0.1	<0.1						<0.1	<0.1	<0.1	
		Hexamethylene diisocyanate	822-06-0	L	>480		>480	>480		>480		>480	>480	>480	>480	>480	
				<0.024		<0.001	<0.001		<0.07		<0.01	<0.001	<0.1	<0.01	<0.01	<0.1	
		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													
		Isophorone diisocyanate	4098-71-9	L										>480	>480	>480	
														<0.1	<0.1	<0.1	
		Methyl isocyanate	624-83-9	L			imm.	imm.		imm.	12	>480	imm.	>480	>480	>480	
							99	99		0.42	0.25	<0.013	99	<0.1	<0.013	<0.013	
		Methyl isocyanate, 90%	624-83-9	L										>480	>480	>480	
														<0.1	<0.1	<0.1	
<b>212 Aromatic</b>																	
		4,4'-Diphenyl methane diisocyanate	101-68-8	S								>480		>480	>480	>480	
												<0.07		<0.1	<0.07	<0.07	
		Paraphenylene diisocyanate (PPDI) crude	104-49-4	L								>480		>480	>480	>480	
												<0.1		<0.1	<0.1	<0.1	

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®
		Phenyl isocyanate	103-71-9	L								>480 <0.1			
		Polymethylene polyphenylpolyisocyanate	9016-87-9	L			>480 <0.01	>480 <0.01		>480* <0.65	>480 <0.1	>480 <0.01	>480 <0.1	>480 <0.1	>480 <0.1
		Toluene-1,3-diisocyanate	26471-62-5	L							>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		Toluene-2,4-diisocyanate	584-84-9	L	imm. 42		>480 <0.05	>480 <0.05		>480 0.037	>480* <0.5	>480 <0.05	>480* <0.5	>480* <0.5	>480* <0.5
		Toluene-2,4-diisocyanate, 80%	584-84-9	L						>480 <0.1			>480 <0.1		
<b>220 Carboxylic Esters</b>															
<b>221 Formates</b>															
		Methyl formate	107-31-3	L											>480 <0.1
<b>222 Aetates</b>															
		n-Amyl acetate	628-63-7	L						>480 0.07	>480 <0.003		>480 <0.1	>480 <0.003	
		n-Butyl acetate	123-86-4	L							>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		Ethyl acetate	141-78-6	L	imm. 13	imm. 1.2	14 0.54	14 0.54	>480 <0.001	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.06	>480 <0.1
		Vinyl acetate	108-05-4	L			82 1.45	82 1.45		imm. 0.8	>480 <0.01	82 1.45	>480 <0.01	>480 <0.01	>480 <0.01
<b>223 Acrylates and Methacrylates</b>															
		n-Butyl acrylate	141-32-2	L							51 18.4		>480 <0.1	>480 <0.02	51 18.4
		Ethyl acrylate	140-88-5	L							14 91		>480 <0.1	>480 <0.02	14 91
		Ethyl methacrylate	97-63-2	L									>240 <0.1		
		2-Hydroxyethylacrylate	818-61-1	L						>480 <0.1					
		Methyl acrylate	96-33-3	L							>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01
		Methyl methacrylate	80-62-6	L			33 18.1	33 18.1		70 1.55	>480 <0.02	33 18.1	>480 <0.02	>480 <0.02	>480 <0.02
<b>224 Aliphatic, Others</b>															
		Dimethylmaleate	624-48-6	L			>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1	

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
<b>225 Lactones</b>																
		Gamma-Butyrolactone	96-48-0	L									>480 <0.1	>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	>480 <0.07	>480 <0.07
		Methyl salicylate	119-36-8	L	imm. 0.5		>480 <0.01	>480 <0.01					>480 <0.01	>480 <0.01		
<b>230 Non-Carboxylic Esters</b>																
<b>233 Carbamates and Others</b>																
		Methomyl, 29%	16752-77-5	L								>480 <0.1		>480 <0.1	>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 <0.1	>480 0.001	>480 <0.1	>480 <0.1	>480 0.001	>480 <0.01
		Chloromethyl methyl ether	107-30-2	L						46 0.7		>480 0.03	288 0.67	>480 <0.1	>480 0.03	>480 0.03
		Dichloroethyl ether	111-44-4	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		Dimethyl ether	115-10-6	G											>480 <0.07	
		Ethyl ether	60-29-7	L			imm.* 1.6	imm.* 1.6				>480 <0.001	imm.* 1.6	>480 <0.001	>480 <0.001	>480 <0.01
		Methyl tert-butyl ether	1634-04-4	L			>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.01	>480 <0.1	>480 <0.007	>480 <0.1	>480 <0.007	>480 <0.007	>480 <0.007
		Tetrahydrofuran	109-99-9	L	imm. 183	imm. 29	imm. >50	imm. >50	314 0.19	464 0.12	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.04	>480 <0.1
<b>245 Glycol Ethers</b>																
		Butyl Cellosolve®	111-76-2	L			>480 <0.003	>480 <0.003					>480 <0.003	>480 <0.003		
		Ethyl Cellosolve®	110-80-5	L			>480 <0.007	>480 <0.007			306 0.29	>480 <0.008	>480 <0.007	>480 <0.008	>480 <0.008	>480 <0.008
		Ethyl Cellosolve® acetate	111-15-9	L			39* 1.8	39* 1.8	>480 0.03	>480 0.03		>480 <0.002	39* 1.8	>480 <0.002	>480 <0.002	>480 <0.002
		Ethylene diglycol monoethyl ether	111-90-0	L			>480 <0.07	>480 <0.07					>480 <0.07	>480 <0.07		

Permeation Guide for DuPont™ Tychem® Fabrics  
Effective January 2003. This Guide replaces all previously published until superseded.

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
		Methyl Cellosolve®	109-86-4	L			89	89	>480	>480		>480	89	>480	>480	>480
							5.77	5.77	<0.001	0.002		<0.01	5.77	<0.01	<0.01	<0.01
		Methyl Cellosolve® acetate	110-49-6	L			260*	260*				>480	260*	>480	>480	>480
							1.1	1.1				<0.01	1.1	<0.01	<0.01	<0.01
<b>246 Vinyllic</b>																
		Ethyl vinyl ether	109-92-2	L										>180		
														<0.1		
<b>260 Halogen Compounds</b>																
<b>261 Aliphatic and Alicyclic</b>																
		Bromochloromethane	74-97-5	L										>180		
														<0.1		
		Carbon tetrachloride	56-23-5	L					11			>480		>480	>480	>480
									0.57			<0.015		<0.1	<0.015	<0.015
		Chlordane	57-74-9	L								>480		>480	>480	>480
												<0.01		<0.01	<0.01	<0.01
		Chlordane, 44%	57-74-9	L							>480					
											<0.1					
		Chloroacetophenone	532-27-4	L										>480		
														<0.1		
		2-Chloroethanol	107-07-3	L	imm.					>480		>480		>480	>480	>480
					3.1					<0.001		<0.008		<0.008	<0.008	<0.008
		Chloroform	67-66-3	L	imm.		imm.	imm.		imm.	imm.	>480	>480	>480	>480	>480
					350		201	201		10	24	<0.004	<0.1	<0.1	<0.004	<0.004
		Chloropicrin	76-06-2	L										>480		
														<0.1		
		1,2-Dibromo-3-Chloropropane	96-12-8	L							>480					
											<0.1					
		1,3-Dichloroacetone (40° C)	534-07-6	L								>480		>480	>480	>480
												<0.1		<0.1	<0.1	<0.1
		1,2-Dichloroethane	107-06-2	L			imm.	imm.			>480	>480	>480	>480	>480	>480
							2	2			<0.1	<0.002	<0.1	<0.1	<0.002	<0.002
		Dichloroethyl ether	111-44-4	L								>480		>480	>480	>480
												<0.01		<0.01	<0.01	<0.01
		Dichloromethane	75-09-2	L	imm.	imm.	imm.	imm.	imm.	imm.	imm.	432	114	>480	>480	>480
					>50	>10	>50	>50	11	8	>11.0	0.06	2.4	<0.1	<0.03	<0.1
		1,3-Dichloropropene	542-75-6	L			imm.	imm.		25	imm.		imm.	>480		
							127	127		1.6	103		127	<0.1		
		2,3-Dichloropropene	78-88-6	L								>480		>480	>480	>480
												<0.008		<0.008	<0.008	<0.008



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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		1,1-Dichlorotetrafluoroethane	374-07-2	L			>480 <0.1	>480 <0.1					>480 <0.1	>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	>480 <0.1	>480 <0.1	>480 <0.1
		Ethylene oxide, 10% in HCFC 124	mixture	G											>480 <0.02	
		Ethyl vinyl ether	109-92-2	L										>180 <0.1		
		Hexafluoroethane	76-16-4	G				>480 <0.02				>480 <0.02	>480 <0.02	>480 <0.02	>480 <0.02	>480 <0.02
		Hexafluoroisobutylene	382-10-5	G								>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01
		Lindane, sat. sol. in acetone	58-89-9	L								>480 <0.06	>480 <0.06	>480 <0.06	>480 <0.06	>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 <0.1				>480 <0.01	>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.01
		Methyl chloride	74-87-3	G	imm. 0.23		>480 <0.006	>480 <0.006	>480 <0.001	>480 0.004		>480 <0.001	>480 <0.006	>480 <0.1	>480 <0.02	>480 <0.1
		Methyl chloride (-70° C)	74-87-3	L											>180 <0.05	
		Methyl fluoride	593-53-3	G								>480 <0.02	>480 <0.1	>480 <0.02	>480 <0.02	>480 <0.02
		Methyl iodide	74-88-4	L			imm. 342	imm. 342				>480 <0.01	imm. 342	>480 <0.1	>480 <0.01	>480 <0.01
		Propylene dichloride	78-87-5	L			73 3.2	73 3.2				>480 <0.01	73 3.2	>480 <0.01	>480 <0.01	>480 <0.01
		Tetrabromoethane	79-27-6	L									>480 <0.1			
		1,1,2,2-Tetrachloroethane	79-34-5	L			75* 12	75* 12				>480 0.0005	75* 12	>480 0.0005	>480 0.0005	>480 0.0005
		1,1,1,2-Tetrafluoroethane	811-97-2	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1			
		Tetrafluoromethane	75-73-0	G								>480 <0.018	>480 <0.018	>480 <0.0177	>480 <0.018	>480 <0.018

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					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		1,1,3-Trichloroacetone	921-03-9	L						>480 <0.05						
		1,1,1-Trichloroethane	71-55-6	L						>480 <0.1	>480 <0.004	>480 <0.1	>480 <0.1	>480 <0.004	>480 <0.004	
		1,1,2-Trichloroethane	79-00-5	L						>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	
		1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	G						>480 <0.1	>480 <0.01	>480 <0.1	>480 <0.01	>480 <0.01	>480 <0.01	
		Trifluoroacetic acid	76-05-1	L		>480 <0.1	>480 <0.1			>480 <0.01		>480 <0.1	>480 <0.1			
		Trifluoromethane	75-46-7	G						>480 <0.014		>480 <0.014	>480 <0.014	>480 <0.014	>480 <0.014	
<b>263 Aromatic</b>																
		Benzotrichloride	98-07-7	L						>480 <0.002						
		4-Bromofluorobenzene	460-00-4	L							>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001	
		Chlorobenzene	108-90-7	L		36 14.1	36 14.1		70 0.43	63 0.7	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.001	>480 <0.001	
		4-Chlorobenzotrichloride	5216-25-1	L						>480 0.034						
		4-Chlorobenzotrifluoride	98-56-6	L						460 0.1						
		4-Chlorophenol, sat. sol. in methanol	106-48-9	L							>480 <0.013		>480 <0.013	>480 <0.013	>480 <0.013	
		o-Chlorotoluene	95-49-8	L		26* 26	26* 26				>480 <0.001	26* 26	>480 <0.001	>480 <0.001	>480 <0.001	
		Cyanuric chloride 20%, Toluene 80%	Mixture	L							>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		3,4-Dichloroaniline	95-76-1	S							>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001	
		3,4-Dichloroaniline (70°C)	95-76-1	L		imm. 17	imm. 17				284 2.4	imm. 17	284 2.4	284 2.4	284 2.4	
		Fluorobenzene	462-06-6	L		imm. >500	imm. >500		imm. high		>480 <0.1	imm. >500	>480 <0.1	>480 <0.1	>480 <0.1	
		o-Nitrochlorobenzene	88-73-3	S	15 4.1	237 0.61	237 0.61					237 0.61	237 0.61			
		o-Nitrochlorobenzene (35° C)	88-73-3	L		80 2.4	80 2.4					80 2.4	80 2.4			

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					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
		p-Nitrochlorobenzene	100-00-5	S	imm.		476	476					476	476			
					2.3		0.11	0.11				0.11	0.11				
			p-Nitrochlorobenzene (85° C)	100-00-5	L			321	321					321	321		
								1.5	1.5				1.5	1.5			
			PCB 1254	11097-69-1	L	55		>480*	>480*					>480*	>480*		
						>3.6		<0.2	<0.2				<0.2	<0.2			
			PCB gas condensate	mixture	L			401	401	>480	>480			401	401		
								0.36	0.36	<0.001	<0.001			0.36	0.36		
			PCB in transformer oil	mixture	L						>480				>240		
											<0.001				<0.1		
			PCB 50%, Mineral oil 50%	mixture	L			>480*	>480*					>480*	>480*		
								nd	nd				nd	nd			
			PCB 1%, Mineral spirits 99%	mixture	L			>480*	>480*					>480*	>480*		
								nd	nd				nd	nd			
		PCB 4%, TCB 6%, Mineral spirits 90%	mixture	L			60*	60*					60*	60*			
							0.04	0.04				0.04	0.04				
		Toluene 80%, Dichlorotriazine 20%	mixture	L							>480						
											<0.1						
		2,2',6,6' Tetrachlorobisphenol A	79-95-8	S						>480							
											<0.1						
		PCB 50%, Trichlorobenzene 50%	mixture	L			>480	>480			>480	>480	>480	>480	>480	>480	
							<0.1	<0.1			<0.1	<0.001	<0.1	<0.001	<0.001	<0.001	
		1,2,4-Trichlorobenzene	120-82-1	L	imm.		113	113			>480	>480	113	>480	>480	>480	
					8.4		1.2	1.2			<0.001		<0.01	1.2	<0.01	<0.01	<0.01
<b>264 Vinyllic</b>																	
		2-Chloroacrylonitrile	920-37-6	L										>480			
													<0.1				
		2-Chloro-1,3- Butadiene	126-99-8	L										>480			
													<0.1				
		trans-1,4-Dichloro-2-butene	110-57-6	L	75*												
					246												
		1,4- Dichloro-2-butene, 85%	764-41-0	L										>480			
													<0.1				
		trans-1,2-Dichloroethylene	156-60-5	L			imm.	imm.					imm.	>180			
							306	306			306	<0.1					
		1,3- Hexachlorobutadiene	87-68-3	L							>480	>480	>480	>480	>480	>480	
											<0.01		<0.1	<0.01	<0.01		
		Hexachlorocyclopentadiene	77-47-4	L										>480			
													<0.1				

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					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		1,1,1-3,3,3-Hexachloropropane	3607-78-1	L			>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1		
		1,1,2,2-Tetrachloroethylene	127-18-4	L	imm. high	imm. >10	imm. 5.7	imm. 5.7	>480 <0.001	>480 <0.022	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.1
		Trichloroethylene	79-01-6	L			imm. >35	imm. >35				>480 <0.1	imm. >35	>480 <0.1	>480 <0.1	>480 <0.1
		Vinyl bromide	593-60-2	L										>480 <0.1		
		Vinyl chloride	75-01-4	G			>480 <0.1	>480 <0.1	>480 <0.001	>480 0.02	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.001	>480 <0.1
		Vinylidene chloride	75-35-4	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
<b>265 Allylic</b>																
		Allyl chloride	107-05-1	L			imm. 18.5	imm. 18.5		imm. <0.1	12 1.2	>480 <0.06	>480 <0.1	>480 <0.06	>480 <0.06	>480 <0.06
<b>266 Benzylic</b>																
		Benzyl chloride	100-44-7	L							>480 <0.1	>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01
<b>270 Heterocyclic Compounds</b>																
<b>271 Nitrogen, Pyridines</b>																
		2-Aminopyridine	504-29-0	L			321 112	321 112					321 112	321 112		
		Nicotine	54-11-5	L			>480 <0.035	>480 <0.035	>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.035	>480 <0.1	>480 <0.1	>480 <0.1
		2-Picoline	109-06-8	L								46 48		46 48	>480 <0.02	46 48
		3-Picoline	108-99-6	L								11 22		11 22	>480 <0.01	11 22
		Pyridine	110-86-1	L			17 34	17 34				>480 <0.01	17 34	>480 <0.1	>480 <0.01	>480 <0.01
		4-Vinylpyridine	100-43-6	L			64 7.3	64 7.3					64 7.3	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	>480 <0.1	>480 <0.1
		Ethyleneimine	151-56-4	L								59 0.56		357 0.032	>480 <0.01	59 0.56
		Pyrrolidine	123-75-1	L								413 9.2		413 9.2	413 9.2	413 9.2

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					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
<b>275 Oxygen, Epoxides</b>																
		Bisphenol-A diglycidyl ether	1675-54-3	L			>480	>480			>480	>480	>480	>480	>480	
							<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01	
		1,2-Butylene oxide	106-88-7	L								>240				
												<0.1				
		Epichlorohydrin	106-89-8	L			57*	57*		372	67	>480	>480	>480	>480	
							>50	>50		0.51	2.1	<0.014	<0.1	<0.014	<0.014	
		Ethylene oxide, 10% in HCFC 124	mixture	G										>480		
														<0.02		
		Ethylene oxide gas	75-21-8	G	imm.		imm.	imm.	75	65	>480	>480	305	>480	>480	
					167		8.4	8.4	2.7	1.4	<0.01	<0.01	1.08	<0.1	<0.1	
		Ethylene oxide liquid (0° C)	75-21-8	L								>480		>480	>480	
												<0.01		<0.01	<0.01	
		Ethylene oxide liquid (11° C)	75-21-8	L						18		>480	>180			
										0.22		<0.1	<0.1			
		Ethylene oxide liquid (-70° C)	75-21-8	L										>180		
														<0.02		
		Phenyl glycidyl ether	122-60-1	L			>480	>480				>480	>480			
							<0.1	<0.1				<0.1	<0.1			
		1,2-Propylene oxide	75-56-9	L						14	30	>480	>480	>480	>480	
										1.02	1.37	<0.002	<0.1	<0.1	<0.002	
<b>277 Oxygen, Furans</b>																
		2-Furaldehyde	98-01-1	L			245*	245*		>480	>480	>480	245*	>480	>480	
							0.2	0.2		0.01	<0.1	<0.01	0.2	<0.01	<0.01	
<b>278 Oxygen, Others</b>																
		1,4-Dioxane	123-91-1	L					>480	>480		>480		>480	>480	
									0.001	0.001		<0.05		<0.05	<0.05	
<b>280 Hydrazines</b>																
		1,1-Dimethylhydrazine	57-14-7	L			12*	12*				>480*	12*	>480	>480*	
							6	6				<5.0	6	<0.1	<5.0	
		Hydrazine	302-01-2	L			437	437		283		>480	>480	>480	>480	
							0.2	0.2		1.6		<0.05	<0.1	<0.1	<0.05	
		Hydrazine hydrate	10217-52-4	L										>480	>480	
														<0.1	<0.01	
		Hydrazine hydrate, 50%	10217-52-4	L										>480	>480	
														<0.06	<0.06	
		Hydrazine hydrate, 85%	10217-52-4	L								440	440	440	440	
												0.06	0.06	0.06	0.06	

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					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®
		Methylhydrazine	60-34-4	L							>480 <0.01		>480 <0.1	>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 <0.1	>480 <0.003	>480 <0.003
		Diesel fuel	68334-30-5	L			48 0.5	48 0.5		>480 <0.001	>480 <0.03	48 0.5	>480 <0.1	>480 <0.03	>480 <0.03
		Diesel automotive test fuel	mixture	L	imm. 1.8		>480 <0.01	>480 <0.01				>480 <0.01	>480 <0.01		
		Fuel oil	mixture	L	imm. 1.8		>480 <0.01	>480 <0.01				>480 <0.01	>480 <0.01		
		Gasoline (mixture)	86290-81-5	L						>480 <0.1					
		Gasoline, leaded	86290-81-5	L					30 0.32		>480* nd		>480* nd	>480* nd	>480* nd
		Gasoline, Unleaded	86290-81-5	L			imm. 4.8	imm. 4.8	>480 <0.001	>480 <0.001	>480 <0.001	imm. 4.8	>480 <0.001	>480 <0.001	>480 <0.001
		Heptane	142-82-5	L						>480 <0.1					
		n-Hexane	110-54-3	L	imm. high	imm. 17	10 0.28	10 0.28	>480 <0.001	>480 <0.001	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.1
		Isobutane	75-28-5	L									>480 <0.1		
		JP-4 jet fuel	Mixture	L			18 24	18 24			>480 <0.002	18 24	>480 <0.002	>480 <0.002	>480 <0.002
		Jet A fuel	8008-20-6	L			58 0.59	58 0.59	>480 <0.1		>480 <0.1	58 0.59	>480 <0.1	>480 <0.1	>480 <0.1
		JP-8 jet fuel	8008-20-6	L			58 0.59	58 0.59	>480 <0.1		>480 <0.1	58 0.59	>480 <0.1	>480 <0.1	>480 <0.1
		Kerosene	8008-20-6	L			58 0.59	58 0.59	>480 <0.1		>480 <0.1	58 0.59	>480 <0.1	>480 <0.1	>480 <0.1
		Methane	74-82-8	G									>480 <0.1		
		Mineral oil	8012-95-1	L			>480 <0.08	>480 <0.08				>480 <0.08	>480 <0.1		
		Mineral spirits	64475-85-0	L	imm. nm		>480* nd	>480* nd			>480 <0.01	>480* nd	>480 <0.01	>480 <0.01	>480 <0.01

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**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		n-Octane	111-65-9	L							>480 <0.01		>480 <0.1	>480 <0.01	>480 <0.01	
		Propane	74-98-6	G									>480 <0.1		>480 <0.01	
		Stoddard solvent	8052-41-3	L							>480 <0.001	>480 <0.1	>480 <0.001	>480 <0.001	>480 <0.001	
		VM&P Naphtha	8032-32-4	L			18 1.3	18 1.3			>480 <0.006	18 1.3	>480 <0.006	>480 <0.006	>480 <0.006	
<b>292 Aromatic</b>																
		Benzene	71-43-2	L			36 11.3	36 11.3	>480 0.001	>480 <0.05	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.001	>480 <0.001
		Benzo[a]pyrene	50-32-8	S			>480* <0.8	>480* <0.8					>480* <0.8	>480* <0.8		
		Cumene	98-82-8	L									>480 <0.01	>480 <0.1	>480 <0.01	>480 <0.01
		Ethyl benzene	100-41-4	L									>480 <0.001	>480 <0.1	>480 <0.001	>480 <0.001
		Isobutylbenzene	538-93-2	L									>480 <0.1			
		1,2,3-Trimethylbenzene, 90%	526-73-8	L									>480 <0.1			
		Styrene	100-42-5	L			12 75	12 75	>480 0.001	>480 <0.04	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.001	>480 <0.001	>480 <0.001
		Tetralone	529-34-0	L									>480 <0.1			
		Toluene	108-88-3	L	imm. 503	imm. 64	imm. 39	imm. 39	>480 <0.001	>480 0.003	>480 <0.1	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.02	>480 <0.1
		Xylene, mixed isomers	1330-20-7	L					291 0.12				>480 <0.004	>480 <0.1	>480 <0.004	>480 <0.004
		o-Xylene	95-47-6	L							>480 <0.1					
<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	>480* <0.8					>480* <0.8	>480* <0.8		
		Naphthalene	91-20-3	L							>480 <0.1					

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	and Tychem® LV	CPF 4	Responder®	TK	Reflector®
		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 <0.01			>480 <0.04	>480 <0.01	>480 <0.04	>480 <0.04	>480 <0.04	
		Ethylene	74-85-1	G									>480 <0.1			
		1-Hexene	592-41-6	L									>480 <0.1			
		Turpentine	8006-64-2	L									>480 <0.1			
<b>296 Polyenes</b>																
		1,3-Butadiene	106-99-0	G	imm. 12		>480 <0.02	>480 <0.02	>480 <0.001	>480 0.07	>480 <0.1	>480 <0.001	>480 <0.02	>480 <0.1	>480 <0.07	>480 <0.1
		1,3-Butadiene (0° C)	106-99-0	L										>180 <0.01		
		Cyclooctadiene	1552-12-1	L						>480 <0.01						
		Isoprene	78-79-5	L									>180 <0.1			
		d-Limonene	5989-27-5	L							>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001	
<b>300 Peroxides</b>																
		Ethyl benzene hydroperoxide	3071-32-7	L									>480 <0.1			
		Hydrogen peroxide, 30%	7722-84-1	L	>480 <0.1		>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1	>480 <0.04	
		Hydrogen peroxide, 50%	7722-84-1	L						>480 <0.002						
		Hydrogen peroxide, 70%	7722-84-1	L	>480 <0.01						>480 <0.01		>480 <0.1	>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	>480 <0.1	>480 <0.1	>480 <0.1
		n-Butanol	71-36-3	L	imm. 1.6		>480 <0.001	>480 <0.001			>480 <0.1	>480 <0.002	>480 <0.001	>480 <0.1	>480 <0.002	>480 <0.002



**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		Ethanol	64-17-5	L							>480 <0.01	>480 <0.1				
		Ethanolamine	141-43-5	L						>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Isobutanol	78-83-1	L								>480 <0.1				
		Methanol	67-56-1	L	imm. 2.2	imm. 0.59	>480 <0.1	>480 <0.1	65 1.07	77 0.26	imm. 0.98	157 0.81	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Methyl Cellosolve®	109-86-4	L			89 5.77	89 5.77	>480 <0.001	>480 0.002		>480 <0.01	89 5.77	>480 <0.01	>480 <0.01	>480 <0.01
		n-Propanol	71-23-8	L								>480 <0.1				
<b>312 Aliphatic and Alicyclic, Secondary</b>																
		Benzyl alcohol	100-51-6	L			>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1		
		Isoamyl alcohol	123-51-3	L			>480 <0.1	>480 <0.1					>480 <0.1	>480 <0.1		
		Isopropanol	67-63-0	L						>480 <0.001	>480 <0.1		>480 <0.1	>480 <0.1		
<b>313 Aliphatic and Alicyclic, Tertiary</b>																
		Acetone cyanohydrin	75-86-5	L							>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01	
		tert-Butyl alcohol	75-65-0	L								>480 <0.1	>480 <0.1			
<b>314 Aliphatic and Alicyclic, Polyols</b>																
		1,4-Butanediol	110-63-4	L								>480 <0.1				
		Ethylene glycol	107-21-1	L	>480 <0.1	>480 <0.1	>480* <0.33	>480* <0.33		>480 <0.001		>480 <0.02	>480* <0.33	>480 <0.02	>480 <0.02	>480 <0.02
		Glycerine	56-81-5	L								>480 <0.1				
		2-Methyl-1,3-propanediol	2163-42-0	L								>480 <0.1				
		Propylene glycol	57-55-6	L								>480 <0.1				
<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	>480 <0.008	>480 <0.008

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		2,2,2-Trichloroethanol	115-20-8	L			19*	19*				>480	19*	>480	>480	>480
							13.2	13.2				<0.01	13.2	<0.01	<0.01	<0.01
		2,2,2-Trifluoroethanol	75-89-8	L	imm.							>480		>480	>480	>480
					high							<0.001		<0.001	<0.001	<0.001
<b>316 Aromatic, Phenols</b>																
		4-tert-Butyl catechol	98-29-3	L									>480			
													<0.1			
		4-Chlorophenol, sat. sol. in methanol	106-48-9	L								>480		>480	>480	>480
												<0.013		<0.013	<0.013	<0.013
		Creosote	8001-58-9	L						>480						
										<0.001						
		m-Cresol 55%, p-Cresol 30%, Phenol 15%	mixture	L								>480		>480	>480	>480
												<0.09		<0.09	<0.09	<0.09
		Cresol, mixed isomers	1319-77-3	L	40*		69	69				>480	69	>480	>480	>480
					0.4		8	8				<0.01	8	<0.1	<0.01	<0.01
		o-Cresol	95-48-7	L	37		>480	>480		180	330		>480	>480		
					0.43		0.17	0.17		2.7	1.35		0.17	0.17		
		4,6-Dinitro-o-cresol , 90+%	534-52-1	L									>480			
													<0.1			
		4,6-Dinitro-o-cresol, sat. sol. in methanol	534-52-1	L								>480		>480	>480	>480
												<0.013		<0.013	<0.013	<0.013
		2-Nitrophenol (70° C)	88-75-5	L			imm.	imm.				208	imm.	208	208	208
							4.53	4.53				0.17	4.53	0.17	0.17	0.17
		Pentachlorophenol, sat. sol. in methanol	87-86-5	L								>480		>480	>480	>480
												<0.013		<0.013	<0.013	<0.013
		Phenol	108-95-2	L								>480		>480	>480	>480
												<0.03		<0.03	<0.07	<0.03
		Phenol, 85%-90%	108-95-2	L	imm.		>480	>480		238	85		>480	>480	>480	>480
					0.4		<0.1	<0.1		4	1.5		<0.1	<0.1	<0.07	<0.01
		Phenol, 88% (45° C)	108-95-2	L			303	303				135	303	303	150	135
							0.91	0.91				2.26	0.91	0.91	2.8	2.26
		2,2',6,6' Tetrachlorobisphenol A	79-95-8	S						>480						
										<0.1						
		2,4,6-Tribromophenol	118-79-6	L										15		
														4.93		

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® OC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
<b>318 Aromatic, Others</b>																
		Phenethyl alcohol	60-12-8	L									>480	>480		
		a-Phenethyl alcohol	98-85-1	L			>480	>480					<0.1	<0.1		
							<0.1	<0.1						>480		
														<0.1		
<b>330 Elements</b>																
		Bromine	7726-95-6	L	imm.					imm.		imm.		18	15	imm.
					high					105		>50		533	25	30
		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*		>480*	>480*					>480*	>480*		
					nd		nd	nd					nd	nd		
		Chlorine gas	7782-50-5	G	imm.		>480	>480	>480	>480*	>480	>480	>480	>480	>480	>480
					>50		<0.1	<0.1	<0.01	0.2	<0.1	<0.01	<0.1	<0.1	<0.02	<0.1
		Chlorine liquid (-70° C)	7782-50-5	L							>480		>480	>480	>480	>480
											<0.01		<0.01	<0.1	<0.01	<0.01
		Iodine	7553-56-2	S	440*		>480*	>480*					>480*	>480*		
					30		<70	<70					<70	<70		
		Mercury	7439-97-6	L			>480	>480		>480		>480	>480	>480	>480	>480
							<0.1	<0.1		<0.04		<0.001	<0.1	<0.1	<0.001	<0.001
<b>340 Inorganic Salts (Solutions)</b>																
		Aluminum sulfate hydrate, 27% sol.	17927-65-0	L										>480		
														<0.1		
		Ammonium chloride, sat.	12125-02-9	L							>480					
											<0.1					
		Ammonium fluoride, 40%	12125-01-8	L								>480		>480	>480	>480
												<0.01	<0.01	<0.01	<0.01	
		Calcium chloride, 42%	10043-52-4	L										>240		
														<0.1		
		Ferric chloride, sat.	7705-08-0	L										>480		
														<0.1		
		Ferrous chloride, sat.	7758-94-3	L										>480		
														<0.1		
		Lithium chloride, 20%	7447-41-8	L	>480											
					<0.1											
		Mercuric chloride, sat. sol. in water	7487-94-7	L			>480*	>480*		>480		>480*	>480*	>480*	>480*	>480*
							<0.28	<0.28		<0.1		<0.28	<0.28	<0.28	<0.28	<0.28

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®
		Potassium acetate, sat. sol. in water	127-08-2	L			>480*	>480*			>480*	>480*	>480*	>480*	>480*
		Potassium carbonate	584-08-7	L							>480				
		Potassium chromate, sat. sol. in water	7789-00-6	L			>480*	>480*		>480	>480*	>480*	>480*	>480*	>480*
		Potassium permanganate	7722-64-7	L	>480								>480		
		Sodium dichromate, 0.5%	10588-01-9	L	<0.1								>480		
		Sodium fluoride, sat. sol. in water	7681-49-4	L			>480*	>480*				>480*			
		Sodium hydrosulfide, sat.	16721-80-5	L			<0.28	<0.28				<0.28			
		Sodium hypochlorite, 13%	7681-52-9	L			>480	>480			>480	>480			
		Sodium hypochlorite, 17%	7681-52-9	L	>480		>480	>480					>480		
		Sodium hypochlorite, 30% chlorine	7681-52-9	L	<0.1		<0.1	<0.1					<0.1		
		Sodium hypochlorite, 5.25%	7681-52-9	L	>480		>480	>480		>480			>480	>480	
					<0.1		<0.1	<0.1					<0.1	<0.1	
<b>345 Inorganic Cyano Compounds</b>															
		Hydrogen cyanide gas	74-90-8	G						30	>480	>480	>480	>480	>480
										1.06	<0.02	<0.1	<0.1	<0.01	<0.05
		Hydrogen cyanide liquid	74-90-8	L	60*						105		105	>480	105
					0.11						1.7		1.7	<0.01	1.7
		Potassium cyanide	151-50-8	L											
		Potassium cyanide, 10%	151-50-8	L	>480										
					<0.1										
		Sodium cyanide	143-33-9	L						15	>480*		>480*	>480*	>480*
										2.2	<0.33		<0.33	<0.33	<0.33
		Sodium cyanide, 45%	143-33-9	L					>480				>480		
									<0.1				<0.1		
		Sodium cyanide, sat. sol. in water	143-33-9	L			>480	>480				>480	>480		
							<0.1	<0.1				<0.1	<0.1		

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					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
<b>350 Inorganic Gases and Vapors</b>																	
		Ammonia gas	7664-41-7	G	imm. 3.1		32 0.15	32 0.15	125 0.5	79 0.76	12 1.4	46 0.62	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Ammonia liquid	7664-41-7	L			>480 <0.1	>480 <0.1			>480 <0.1		>480 <0.01	>480 <0.1	>480 <0.1	>480 <0.07	
		Arsine	7784-42-1	G								>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	
		Boron trichloride	10294-34-5	G								>480 <0.02	>480 <0.1	>480 <0.02	>480 <0.02	>480 <0.02	
		Boron trifluoride	7637-07-2	G								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Carbon monoxide	630-08-0	G								330 0.1	330 0.1	330 0.1	330 0.1	330 0.1	
		Chlorine, 20 ppm	7782-50-5	G	>480* nd		>480* nd	>480* nd					>480* nd	>480* nd			
		Chlorine dioxide, 5%	10049-04-4	G									>480 <0.1				
		Chlorine dioxide, 150 ppm	10049-04-4	G									>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	
		Chlorine dioxide, 1000 ppm	10049-04-4	G									>480 <0.01	>480 <0.01	>480 <0.01	>480 <0.01	
		Chlorine gas	7782-50-5	G	imm. >50		>480 <0.1	>480 <0.1	>480 <0.01	>480* 0.2	>480 <0.1	>480 <0.01	>480 <0.1	>480 <0.1	>480 <0.02	>480 <0.1	
		Chlorine liquid (-70° C)	7782-50-5	L								>480 <0.01	>480 <0.01	>480 <0.1	>480 <0.01	>480 <0.01	
		Chlorine trifluoride	7790-91-2	G								45 96	160 >53	45 96	45 96	45 96	
		Diborane, 10%	19287-45-7	G								>480 <0.005	>480 <0.1	>480 <0.005	>480 <0.005	>480 <0.005	
		Fluorine	7782-41-4	G									>480 <0.1	>480 <0.002			
		Hydrogen bromide	10035-10-6	G								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Hydrogen chloride gas	7647-01-0	G	imm. 9.3		>480 <0.1	>480 <0.1	195 0.33	>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	
		Hydrogen chloride liquid (-90° C)	7647-01-0	L											>180 <0.1		
		Hydrogen cyanide gas	74-90-8	G								30 1.06	>480 <0.022	>480 <0.1	>480 <0.1	>480 <0.01	>480 <0.05

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					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
		Hydrogen fluoride gas	7664-39-3	G	imm.		35	35		imm.	170	135	20*	>480	>480	>480	
					6		3	3		high	6.7	6.7	3	<0.1	<0.1	<0.0174	
		Hydrogen fluoride liquid (0°C)	7664-39-3	L							50				290		
														5.73			1.3
		Hydrogen fluoride liquid (4°C)	7664-39-3	L									300		290		
														1.3		1.3	
		Hydrogen fluoride liquid (15°C)	7664-39-3	L										>480		>480	
															<0.1		<0.1
		Hydrogen selenide	7783-07-5	G										>480	>480	>480	
															<0.01	<0.01	<0.01
		Hydrogen sulfide	7783-06-4	G										>480	>480	>480	
															imm.	>480	>480
		Nitric oxide	10102-43-9	G												>480	
																	<0.04
		Nitrogen dioxide	10102-44-0	G			>480	>480		14				>480	>480		
							<0.001	<0.001		>0.2				<0.001	<0.001		
		Nitrogen tetroxide	10544-72-6	G										90	220	90	420
																	>1.1
		Nitrogen tetroxide (0° C)	10544-72-6	L										>480	>480	>480	
																	0.001
		Nitrogen tetroxide (21° C)	10544-72-6	L												450	
																	0.2
		Nitrogen trifluoride	7783-54-2	G										>480	>480	>480	
																	<0.014
		Nitrous oxide	10024-97-2	G										>480	>480	>480	
																	<0.018
		Phosgene	75-44-5	G						>480	>480	>480		>480	>480	>480	
																	<0.02
		Phosphine	7803-51-2	G						imm.				>480	>480	>480	
																	>0.11
		Sulfur dioxide	7446-09-5	G	imm.		>480	>480		38*				>480	>480	>480	
					>29		<0.1	<0.1		2							<0.01
		Sulfur hexafluoride	2551-62-4	G										>480	>480	>480	
																	<0.015
		Sulfuryl chloride	7791-25-5	L										>480	>480	>480	
																	<0.1
		Tungsten hexafluoride	7783-82-6	G										>480	>480	>480	
																	<0.1

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®		
<b>360 Inorganic Acid Halides</b>																	
		Aluminum chloride	7446-70-0	L									>480				
		Antimony pentachloride	7647-18-9	L			>480	>480		15			>480	>480			
							<0.1	<0.1		10			<0.1	<0.1			
		Boron trichloride	10294-34-5	G								>480	>480	>480	>480	>480	>480
												<0.02	<0.1	<0.02	<0.02	<0.02	<0.02
		Boron trifluoride	7637-07-2	G								>480	>480	>480	>480	>480	>480
												<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		Phosphorus oxychloride	10025-87-3	L						>480		>480	>480	>480	>480	>480	>480
										<0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		Phosphorus trichloride	7719-12-2	L			20	20		>480	>480	>480	20	>480	>480	>480	>480
							28	28		0.003	<0.1	<0.1	28	<0.1	<0.1	<0.1	<0.1
		Silicon tetrachloride	10026-04-7	L			80	80				>480	80	>480	>480	>480	>480
							7.8	7.8				<0.1	7.8	<0.1	<0.1	<0.1	<0.1
		Sulfuryl chloride	7791-25-5	L								>480	>480	>480	>480	>480	>480
												<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		Thionyl chloride	7719-09-7	L								35	45	90	35		
												2500	243	63.6	2500		
		Titanium tetrachloride	7550-45-0	L			15	15	>480		120	>480	15	>480	>480	>480	>480
							73	73	<0.1		11.6	<0.1	73	<0.1	<0.1	<0.1	<0.1
<b>365 Inorganic Acid Oxides</b>																	
		Sulfur dioxide	7446-09-5	G	imm.		>480	>480		38*		>480	>480	>480	>480	>480	>480
					>29		<0.1	<0.1		2		<0.01	<0.1	<0.1	<0.01	<0.01	<0.01
		Sulfur trioxide	7446-11-9	L								90	90	90	90	90	90
												696	696	696	696	696	696
		Sulfur trioxide (60° C)	7446-11-9	L									90				
													>100				
<b>370 Inorganic Acids</b>																	
		Chlorosulfonic acid	7790-94-5	L			>480	>480			330	180	>480	>480	>480	>480	180
							<0.1	<0.1			0.97	98	<0.1	<0.1	<0.1	<0.1	98
		Chromic acid, 60-62%	1333-82-0	L	>480		>480	>480					>480	>480			
					<0.1		<0.1	<0.1					<0.1	<0.1			
		Fluoroboric acid, 48-50%	16872-11-0	L			>480	>480			>480		>480				
							<0.1	<0.1			<0.1		<0.1				
		Fluorosilicic acid	16961-83-4	L								>480	>480	>480	>480	>480	>480
												<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		Fluorosilicic acid, 30%	16961-83-4	L									>480				
													<0.1				

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**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		Fluorosulfonic acid	7789-21-1	L							>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		Hydriodic acid, 47%	10034-85-2	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1			
		Hydriodic acid, 57%	10034-85-2	L							>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		Hydrobromic acid, 48%	10035-10-6	L									>480 <0.1			
		Hydrochloric acid, 37%	7647-01-0	L	86 1.1	90 1.4	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.02	>480 <0.1	>480 <0.02	>480 <0.02	>480 <0.1	
		Hydrofluoric acid, 48%-51%	7664-39-3	L	>480 0.08	>480 <0.1	>480 <0.1	>480 <0.1		>480 <0.1	180 0.86	>480 <0.02	>480 <0.1	>480 <0.02	>480 <0.02	
		Hydrofluoric acid, 70%	7664-39-3	L			imm. 0.6	imm. 0.6		39 1.2		imm. 0.6		>480 <0.1		
		Hydrofluoric acid, 92% (90°C)	7664-39-3	L							67* 2.8		67* 2.8	67* 2.8	67* 2.8	
		Hydrogen bromide	10035-10-6	G							>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	
		Hydrogen cyanide liquid	74-90-8	L	60* 0.11						105 1.7		105 1.7	>480 <0.01	105 1.7	
		Hydrogen fluoride liquid (0°C)	7664-39-3	L						50 5.73				290 1.3		
		Hydrogen fluoride liquid (4°C)	7664-39-3	L								300 1.3		290 1.3		
		Hydrogen fluoride liquid (15°C)	7664-39-3	L									>480 <0.1		>480 <0.1	
		Hypophosphorus acid, 50%	6303-21-5	L							>480 <0.01					
		Nitric acid, 70%	7697-37-2	L	410* 0.7	>480 <0.1	>480 <0.1	>480 <0.1	>480 <.013	>480 <0.001		>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Nitric acid, 90%	7697-37-2	L							>480 <0.1	>480 <0.033		>480 <0.033	>480 <0.033	
		Nitric acid, red fuming	52583-42-3	L						14 >50				>180 0.002	390 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	450 0.005					450 0.005	450 0.005		



**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR	Tychem®	Tychem®	Tychem®	Tychem®
					OC	CPF 1	SL	CPF 2	7500	F	CPF 3	and Tychem® LV	CPF 4	Responder®	TK
	L	Oleum, 40% free SO <sub>3</sub>	8014-95-7	398		>480	>480				>480	>480	>480	>480	>480
				0.2		<0.04	<0.04				<0.04	<0.04	<0.1	<0.04	<0.04
	L	Oleum, 65% free SO <sub>3</sub>	8014-95-7						15		>480		>480		
									>50		<0.1		<0.1		
	L	Perchloric acid, 70%	7601-90-3								>480		>480	>480	>480
										<0.1		<0.1	<0.1	<0.1	
L	Phosphoric acid, 75%	7664-38-2						15							
								60							
L	Phosphoric acid, 85%	7664-38-2		>480	>480	>480		>480		>480	>480	>480	>480	>480	
				<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	
L	Sulfuric acid	7664-93-9		>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	
				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>380 Inorganic Bases</b>															
	L	Ammonia liquid	7664-41-7			>480	>480			>480		>480	>480	>480	>480
						<0.1	<0.1			<0.1		<0.01	<0.1	<0.1	<0.07
L	Ammonium hydroxide, 28%-30%	1336-21-6	imm.		>480	>480		>480	89	160	>480	>480	>480	>480	
			62		<0.1	<0.1		<0.1	32	4.7	<0.1	<0.1	<0.1	<0.02	
L	Lithium hydroxide, 20%	1310-65-2	>480												
			<0.1												
L	Potassium hydroxide	1310-58-3								>480		>480	>480	>480	
									<0.008		<0.008	<0.008	<0.008		
L	Potassium hydroxide, 45%	1310-58-3								>480	>480	>480	>480	>480	
									<0.008	<0.1	<0.008	<0.008	<0.008		
S	Sodium hydroxide, conc.	1310-73-2						>480							
								<0.1							
L	Sodium hydroxide, 50%	1310-73-2	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480	
			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
L	Sodium hydroxide, sat. sol. in water	1310-73-2	>480		>480	>480					>480	>480			
			<0.1		<0.1	<0.1					<0.1	<0.1			
<b>390 Ketones</b>															
<b>391 Aliphatic and Alicyclic</b>															
	L	Acetone	67-64-1	imm.	imm.	12	12	433	>480	>480	>480	>480	>480	>480	>480
				10	1.9	3.2	3.2	0.08	0.06	<0.1	<0.001	<0.1	<0.1	<0.01	<0.1
L	Chloroacetone	78-95-5			>480	>480					>480	>480			
					0.08	0.08					0.08	0.08			
L	Cyclohexanone	108-94-1								>480		>480	>480	>480	
									<0.01		<0.01	<0.01	<0.01		
L	1,3-Dichloroacetone (40° C)	534-07-6								>480		>480	>480	>480	
									<0.1		<0.1	<0.1	<0.1		

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**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® OC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
		Mesityl oxide	141-79-7	L										>480 <0.1		
		Methyl ethyl ketone	78-93-3	L			10 13	10 13		71 0.37	>480 <0.1	>480 <0.007	>480 <0.1	>480 <0.007	>480 <0.007	>480 <0.01
		Methyl isobutyl ketone	108-10-1	L						>480 <0.05		>480 0.001		>480 <0.1	>480 0.001	>480 <0.001
		1,1,3-Trichloroacetone	921-03-9	L						>480 <0.05						
<b>392 Aromatic</b>																
		Acetophenone	98-86-2	L									>480 <0.1			
		Chloroacetophenone	532-27-4	L										>480 <0.1		
<b>430 Nitriles</b>																
<b>431 Aliphatic and Alicyclic</b>																
		Acetone cyanohydrin	75-86-5	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		Acetonitrile	75-05-8	L	imm. 16	imm. 1.9	12 2.8	12 2.8	14 180	157 0.19	imm. 0.78	>480 <0.003	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Acrylonitrile	107-13-1	L	imm. 10.6		50 1.2	50 1.2		12 0.57	13 0.75	>480 <0.001	377 0.18	>480 <0.1	>480 <0.001	>480 <0.001
		Adiponitrile	111-69-3	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		2-Chloroacrylonitrile	920-37-6	L									>480 <0.1			
		2-Methylglutaronitrile, 87%	4553-62-2	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		2-Pentenenitrile	13284-42-9	L									>480 <0.1			
		cis-2-Pentenenitrile, 70%	25899-50-7	L								>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001
		3-Pentenenitrile	4635-87-4	L								>480 <0.001		>480 <0.001	>480 <0.001	>480 <0.001
<b>432 Aromatic</b>																
		Benzonitrile	100-47-0	L						>480 <0.001		>480 <0.004		>480 <0.1	>480 <0.004	>480 <0.004

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem® QC	Tychem® CPF 1	Tychem® SL	Tychem® CPF 2	Tychem® 7500	Tychem® F	Tychem® CPF 3	Tychem® BR and Tychem® LV	Tychem® CPF 4	Tychem® Responder®	Tychem® TK	Tychem® Reflector®
<b>440 Nitro Compounds</b>																
<b>441 Unsubstituted</b>																
		Nitrobenzene	98-95-3	L	imm.	imm.	102	102	>480	>480	>480	>480	>480	>480	>480	>480
					18	7.2	2.3	2.3	<0.001	<0.001	<0.1	<0.01	<0.1	<0.1	<0.01	<0.1
		Nitromethane	75-52-5	L						229		>480		>480	>480	>480
										0.97		<0.005		<0.1	<0.005	<0.005
		2-Nitropropane	79-46-9	L								>480		>480	>480	>480
												<0.01		<0.01	<0.01	<0.01
<b>442 Substituted</b>																
		4,6-Dinitro-o-cresol , 90+%	534-52-1	L									>480			
													<0.1			
		Dinitro-o-cresol, sat. sol. in methanol	534-52-1	L									>480		>480	>480
													<0.013	<0.013	<0.013	<0.013
		o-Nitrochlorobenzene	88-73-3	S	15		237	237					237	237		
					4.1		0.61	0.61					0.61	0.61		
		o-Nitrochlorobenzene (35° C)	88-73-3	L			80	80					80	80		
							2.4	2.4					2.4	2.4		
		p-Nitrochlorobenzene	100-00-5	S	imm.		476	476					476	476		
					2.3		0.11	0.11					0.11	0.11		
		p-Nitrochlorobenzene (85° C)	100-00-5	L			321	321					321	321		
							1.5	1.5					1.5	1.5		
		2-Nitrophenol (70° C)	88-75-5	L			imm.	imm.				208	imm.	208	208	208
							4.53	4.53				0.17	4.53	0.17	0.17	0.17
		o-Nitrotoluene	88-72-2	L			317	317					317	317		
							0.41	0.41					0.41	0.41		
		p-Nitrotoluene	99-99-0	S	imm.		123	123					123	123		
					14		2.2	2.2					2.2	2.2		
		p-Nitrotoluene (60° C)	99-99-0	L			imm.	imm.					imm.	imm.		
							42	42					42	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	>480					>480	>480		
							<0.1	<0.1					<0.1	<0.1		
		Chlorpyrifos, 7%	2921-88-2	L			>480	>480					>480	>480		
							<0.1	<0.1					<0.1	<0.1		

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Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		Ethyl parathion	56-38-2	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		Malathion	121-75-5	L								>480 <0.013		>480 <0.013	>480 <0.1	>480 <0.013
		Malathion, 50% in water	121-75-5	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1			
		Malathion, 50% in methanol	121-75-5	L								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Methyl parathion	298-00-0	L									>480 <0.1			
		Sarin (GB) Chemical Agent	107-44-8	L	See "Chemical Warfare Agents" Data Sheet for test protocols and results.											
		Soman (GD) chemical agent	96-64-0	L	See "Chemical Warfare Agents" Data Sheet for test protocols and results.											
		Skydrol®	95660-51-8	L										>480 <0.1		
		Tabun	77-81-6	L	See "Chemical Warfare Agents" Data Sheet for test protocols and results.											
		Tetraethyl lead	78-00-2	L								>480 <0.1	>480 <0.07	>480 <0.07	>480 <0.07	>480 <0.07
		Trimethyl phosphite	512-56-1	L								>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1
		Trimethyl phosphite	121-45-9	L			10 0.5	10 0.5				>480 <0.1	10 0.5	>480 <0.1	>480 <0.1	>480 <0.1
		Triphenyl phosphite	101-02-0	L										>480 <0.1		
		Tritolyl phosphate	1330-78-5	L									>480 <0.1			
		Vinylmagnesium chloride, 16.5%	3536-96-7	L								>480 <0.01		>480 <0.01	>480 <0.01	>480 <0.01
		VX Nerve agent	50782-69-9	L	See "Chemical Warfare Agents" Data Sheet for test protocols and results.											
<b>470 Organo-Metallic Compounds</b>																
		Lewisite (L) Chemical Agent	541-25-3	L	See "Chemical Warfare Agents" Data Sheet for test protocols and results.											
		Nickel carbonyl	13463-39-3	L											>480 <0.04	
		Organo-Tin Paint	mixture	L										>240 <0.1		

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		Triethylaluminum	97-93-8	L												>480 <0.1
<b>480 Organo-Silicon Compounds</b>																
		Dichlorosilane	4109-96-0	G							>480 <0.1		>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Dimethyldichlorosilane	75-78-5	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Hexamethyldisilazane	999-97-3	L			>480 <0.03	>480 <0.03				>480 <0.02	>480 <0.03	>480 <0.1	>480 <0.02	>480 <0.02
		Methyl trichlorosilane	75-79-6	L								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Silane	7803-62-5	G								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Silicon tetrachloride	10026-04-7	L			80 7.8	80 7.8				>480 <0.1	80 7.8	>480 <0.1	>480 <0.1	>480 <0.1
		Tetraethoxysilane	78-10-4	L								>480 <0.014	>480 <0.014	>480 <0.014	>480 <0.014	>480 <0.014
		Trichlorophenylsilane	98-13-5	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Trichlorosilane	10025-78-2	L			30 59	30 59				>480 <0.022	30 59	>480 <0.1	>480 <0.022	>480 <0.022
		Trichlorovinylsilane	75-94-5	L			75 3.6	75 3.6				>480 3.6	>480 3.6	>480 3.6	>480 3.6	>480 3.6
		Triethoxysilane	998-30-1	L									>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
<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 <0.1	>480 <0.001	>480 <0.001
		Phenyl mercaptan	108-98-5	L			19 3.6	19 3.6				>480 <0.02	19 3.6	>480 <0.02	>480 <0.02	>480 <0.02
		Thioglycolic acid	68-11-1	L								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
<b>502 Sulfides and Disulfides</b>																
		Carbon disulfide	75-15-0	L	imm. high	imm. >10	imm. >50	imm. >10	>480 0.07	>480 0.05	16 0.51	>480 <0.001	>480 <0.1	>480 <0.1	>480 <0.02	>480 <0.1
		Dimethyl sulfide	75-18-3	L						26 0.58						

**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		Dimethyl disulfide	624-92-0	L									>480			
													<0.1			
		Disulfur dichloride	10025-67-9	L					>480		210		>480	>480	>480	
									<0.01		6.2		<0.01	<0.01	<0.01	
		Hydrogen sulfide	7783-06-4	G							imm.		>480	>480	>480	
											1.8		<0.01	<0.01	<0.01	
		Sulfur dichloride, 80%	10545-99-0	L							imm.	70	40	448	>480	
											41	6	4.94	0.33	<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 Sheet for test protocols and results.											
<b>503 Sulfones and Sulfoxides</b>																
		Dimethyl sulfoxide	67-68-5	L						36		>480		>240	>480	>480
										1.9		0.003		<0.1	0.003	0.003
<b>504 Sulfonic Acids</b>																
		Chlorosulfonic acid	7790-94-5	L			>480	>480			330	180	>480	>480	>480	180
							<0.1	<0.1			0.97	98	<0.1	<0.1	<0.1	98
		Methanesulfonic acid	75-75-2	L			>480	>480					>480	>480		
							<0.1	<0.1					<0.1	<0.1		
		p-Toluenesulfonic acid Monohydrate	6192-52-5	L									>480			
													<0.1			
		Trifluoromethane sulfonic acid	1493-13-6	L			>480	>480					>480	>480	>480	>480
							<0.01	<0.01					<0.01	<0.01	<0.01	<0.01
<b>505 Sulfonyl Chlorides</b>																
		Benzene sulfonyl chloride	98-09-9	L									>480	>480	>480	>480
													<0.1	<0.1	<0.1	<0.1
<b>507 Sulfonates, Sulfates, and Sulfites</b>																
		Diethyl sulfate	64-67-5	L										>480	>480	
														<0.1	<0.1	
		Dimethyl sulfate	77-78-1	L			>480	>480					>480	>480	>480	>480
							<0.1	<0.1					<0.001	<0.1	<0.1	<0.001
<b>509 Other</b>																
		Sulfur hexafluoride	2551-62-4	G									>480	>480	>480	>480
													<0.015	<0.1	<0.015	<0.015
<b>550 Organic Salts (Solutions)</b>																
		Sodium methylate, 50% in methanol	124-41-4	L									>480	>480	>480	>480
													<0.1	<0.1	<0.1	<0.1

Permeation Guide for DuPont™ Tychem® Fabrics  
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**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub-Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®	
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
<b>590 Miscellaneous (Not classified)</b>																
		AFFF	191681-14-8	L											>240 <0.1	
		Black Liquor	308074-23-9	L	>480 <0.1		>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Borane-pyridine complex	110-51-0	L											>480 <0.1	
		Boron trifluoride etherate	109-63-7	L											>480 <0.1	
		Chemidize 727 ND	mixture	L			>480 <0.06	>480 <0.06				>480 <0.06	>480 <0.06			
		Crude oil	8002-05-9	L	imm. 3.3		>480 <0.01	>480 <0.01				>480 <0.04	>480 <0.01	>480 <0.04	>480 <0.04	>480 <0.04
		Decontaminating Agent (DS-2)	mixture	L											>240 <0.1	
		2,4-Dichloro-6-isopropyl-S-triazine 22%, Toluene 78%	mixture	L								>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Dowtherm Heat Transfer Fluid	8004-13-5	L											>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	45* 18				45* 18	45* 18			
		Gasohol	mixture	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1			
		Glade Intech 200	mixture	L			>480 <0.1	>480 <0.1				>480 <0.1	>480 <0.1			
		Green liquor	68131-30-6	L	>480 <0.1		>480 <0.1	>480 <0.1				>480 <0.1	>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	>480 <0.1	>480 <0.1	>480 <0.1	>480 <0.1
		Otto Fuel II	106602-80-6	L											>480 <0.1	

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**Data Table for Tychem® Limited-Use Fabrics**

Class	Sub- Class	Chemical Name	CAS	Phase	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem®	Tychem® BR and Tychem® LV	Tychem®	Tychem®	Tychem®	Tychem®
					QC	CPF 1	SL	CPF 2	7500	F	CPF 3	CPF 4	Responder®	TK	Reflector®	
		t-Sodium-amylate / t-amyl alcohol	mixture	S								120 4.9		120 4.9	120 4.9	120 4.9
		Tetramethyltin (0.5%) in n-pentane	mixture	L								>480 <0.006		>480 <0.006	>480 <0.006	>480 <0.006
		White liquor	68131-33-9	L	>480		>480	>480				>480	>480	>480	>480	>480
					<0.1		<0.1	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1	

**595 Chemical Warfare Agents** See "Chemical Warfare Agents" Data Table for test results and protocols.

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**Data Table for Tychem® Reusable Fabrics**

<b>Note:</b> Permeation test results are listed as follows: <u>Average Standardized Breakthrough Time (minutes)</u> Average Steady-State Permeation Rate ( $\mu\text{g}/\text{cm}^2/\text{min.}$ )				<b>Symbols and Abbreviations used in data table:</b> > = more than    < = less than    imm. = immediate (less than 10 minutes) * Actual breakthrough time; standardized data not available.    S = Solid    L = Liquid    G = Gas						
Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>100 Carboxylic Acids</b>										
<b>102 Aliphatic and Alicyclic, Unsubstituted</b>										
		Acetic acid, glacial	64-19-7	L	>480 <0.001					
		Acrylic acid	79-10-7	L	>180 <0.1					
		Formic Acid	64-18-6	L	>480 <0.001					
<b>120 Aldehydes</b>										
<b>122 Aromatic</b>										
		2-Furaldehyde	98-01-1	L		>480 <0.1				
<b>130 Amides</b>										
<b>132 Aliphatic and Alicyclic</b>										
		N,N-Dimethylformamide	68-12-2	L	112* 18.4	>480 <0.1		20* >416		12* >416
<b>140 Amines</b>										
<b>142 Aliphatic and Alicyclic, Secondary</b>										
		Diethylamine	109-89-7	L	22* 68	imm. 527		imm. >416		imm. >416
<b>220 Carboxylic Esters</b>										
<b>222 Acetates</b>										
		Ethyl acetate	141-78-6	L	30* 3.8	28 19		imm. >416		imm.* >416
<b>240 Ethers</b>										
<b>241 Aliphatic and Alicyclic</b>										
		Tetrahydrofuran	109-99-9	L	16* 15.4	imm. 333		imm. >416		imm. >416

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**Data Table for Tychem® Reusable Fabrics**

Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>260 Halogen Compounds</b>										
<b>261 Aliphatic and Alicyclic</b>										
		Chloroform	67-66-3	L					imm. >1.2	
		Dichloromethane	75-09-2	L	imm. 19.2	imm. 583		imm. >417		imm. >416
		Methyl iodide	74-88-4	L	imm. >100					
<b>264 Vinylic</b>										
		1,2-Dichloroethylene	540-59-0	L	imm. >100					
		1,1,1,2-Tetrachloroethylene	127-18-4	L	65* 1.83	imm. 10.3		12* >416		imm.* >416
		Trichloroethylene	79-01-6	L						imm.* 120
<b>270 Heterocyclic Compounds</b>										
<b>275 Oxygen, Epoxides</b>										
		Epichlorohydrin	106-89-8	L	43 >35					
		Ethylene oxide liquid	75-21-8	L				13 156		
<b>277 Oxygen, Furans</b>										
		2-Furaldehyde	98-01-1	L		>480 <0.1				
<b>280 Hydrazines</b>										
		Hydrazine	302-01-2	L	>480 <0.06					
<b>290 Hydrocarbons</b>										
<b>291 Aliphatic and Alicyclic, Saturated</b>										
		n-Hexane	110-54-3	L	>480 0.042	imm. 487		20* 17.1		12* 22
<b>292 Aromatic</b>										
		Toluene	108-88-3	L	28* 6.4	imm. 770		imm.* >416		imm.* >416

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**Data Table for Tychem® Reusable Fabrics**

Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>310 Hydroxylic Compounds</b>										
<b>311 Aliphatic and Alicyclic, Primary</b>										
		Allyl alcohol	107-18-6	L	>480 <0.039					
		Methanol	67-56-1	L	>480 <0.001	304 0.037		24* 6.6		16* 8.6
<b>313 Aliphatic and Alicyclic, Tertiary</b>										
		Acetone cyanohydrin	75-86-5	L	>480 <0.1					
<b>316 Aromatic, Phenols</b>										
		Phenol	108-95-2	L	40 9			11 31		
		Phenol, 85%	108-95-2	L				135 25		
<b>330 Elements</b>										
		Bromine	7726-95-6	L	31 64.1					
		Chlorine gas	7782-50-5	G	>480 <0.03			160 1.28		180 1.06
		Chlorine liquid (-70° C)	7782-50-5	L	108* 727			28* >260		
		Iodine, molten (134° C)	7553-56-2	L	100 1.1					50 1.3
<b>345 Inorganic Cyano Compounds</b>										
		Cyanogen bromide, 30% in formic acid	mixture	L	>480 <0.002					
		Hydrogen cyanide, 10% sat. sol. in water	74-90-8	L	>480 <0.0217				56 1.86	
		Hydrogen cyanide gas (30° C)	74-90-8	G	>480 <0.0217				87 1.11	
		Hydrogen cyanide liquid (20° C)	74-90-8	L	>480 <0.022				71 0.92	

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**Data Table for Tychem® Reusable Fabrics**

Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>350 Inorganic Gases and Vapors</b>										
		Ammonia gas	7664-41-7	G	120*			25*		13*
					1.53			80		2.3
		Chlorine gas	7782-50-5	G	>480			160		180
					<0.03			1.28		1.06
		Chlorine liquid (-70° C)	7782-50-5	L	108*			28*		
					727			>260		
		Cyanogen bromide, 30% in formic acid	mixture	L	>480					
					<0.002					
		Hydrogen chloride gas	7647-01-0	G	>180*					>480
					<1.0					<0.008
		Hydrogen cyanide gas (30° C)	74-90-8	G	>480				87	
					<0.0217				1.11	
		Hydrogen fluoride gas	7664-39-3	G	>480	imm.	imm.	>180	60	imm.
					0.037	500	>2.4	<0.001	23.2	251
		Hydrogen fluoride liquid (17° C)	7664-39-3	L	66*					
					134					
		Hydrogen fluoride liquid (20° C)	7664-39-3	L	19*	50			27	
					207	240			2.6	
		Phosgene	75-44-5	G	>480					
					<0.001					
<b>365 Inorganic Acid Oxides</b>										
		Sulfur trioxide	7446-11-9	L	imm.			imm.	imm.	imm.
					High			High	High	High

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**Data Table for Tychem® Reusable Fabrics**

Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>370 Inorganic Acids</b>										
		Chlorosulfonic acid	7790-94-5	L					30 71	
		Hydrochloric acid, 37%	7646-01-0	L		>480 <0.1	>400 <0.2		>480 <0.1	
		Hydrofluoric acid, 48- 50%	7664-39-3	L		>480 <0.009	>480 <0.1	150 7.1	>480 <0.01	imm. 0.81 0.1
		Hydrogen cyanide, 10% aqueous solution (25° C)	74-90-8	L		>480 <0.0217				56 1.86
		Hydrogen cyanide liquid (20° C)	74-90-8	L		>480 <0.022				71 0.92
		Hydrogen fluoride liquid (17° C)	7664-39-3	L		66* 134				
		Hydrogen fluoride liquid (20° C)	7664-39-3	L		19* 207	50 240			27 2.6
		Oleum, 65.1%	8014-95-7	L						75 5
		Sulfuric acid, 95+%	7664-93-9	L		>480 <0.1	160 0.49	55 313	110 139	110 91 130 168
<b>380 Inorganic Bases</b>										
		Sodium hydroxide, 50%	1310-73-2	L		>480 <0.025	>480 <0.1		>180 <0.001	>480 <0.01 >480 <0.1
<b>390 Ketones</b>										
<b>391 Aliphatic and Alicyclic</b>										
		Acetone	67-64-1	L		35* 1.3	125 0.037		imm* >417	imm.* >416

**Data Table for Tychem® Reusable Fabrics**

Class	Sub Class	Chemical Name	CAS Number	Phase	DuPont™ StaSafe® CPE	Butyl	DuPont™ StaSafe® PVC			
							FlexLite Orange	GraLite 20	Hi Glo	Winter Glo 20
<b>430 Nitriles</b>										
<b>431 Unsubstituted</b>										
		Acetone cyanohydrin	75-86-5	L		>480 <0.1				
		Acetonitrile	75-05-8	L		>480 0.09 0.022		imm.* 129.4		imm.* 140
		Acrylonitrile	107-13-1	L		23 19	138 0.84			
		2-Pentenenitrile, 70%	25899-50-7	L			221 1.14			
<b>440 Nitro Compounds</b>										
<b>441 Unsubstituted</b>										
		Nitrobenzene	98-95-3	L		140* 2.73	>480 <0.1	31* 186		21* 101
<b>460 Organo-Phosphorus Compounds</b>										
<b>461 Phosphines</b>										
		Cyanex®	mixture	L		>480 <0.009				
<b>500 Sulfur Compounds</b>										
<b>502 Sulfides and Disulfides</b>										
		Carbon disulfide	75-15-0	L		12* 11.7	imm. 380	imm.* >417		imm.* >416
<b>504 Sulfonic Acids</b>										
		Chlorosulfonic acid	7790-94-5	L				30 71		
<b>507 Sulfonates, Sulfates, and Sulfites</b>										
		Dimethyl sulfate	77-78-1	L		>480 <0.1	>480 <0.1			
<b>590 Miscellaneous (Not Classified)</b>										
		Borane pyridine complex	110-51-0	L		339 6.6				

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Permeation Guide for DuPont™ Tychem® Protective Fabrics. *Effective January 2003.*  
**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	Limited Use	Re-usable	Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub-Class	Limited Use	Re-usable
Acetaldehyde		75-07-0	120	121	T	nt	Aluminum sulfate hydrate		17927-65-0	340	340	T	nt
Acetamide		60-35-5	130	132	nt	nt	Aminobutane	sec-Butylamine	13952-84-6	140	141	T	nt
Acetic acid		64-19-7	100	102	T	T	2-Aminoethanol	Ethanolamine	141-43-5	140 / 310	141 / 311	T	nt
Acetic anhydride		108-24-7	160	161	T	nt	2-Aminopropane	Isopropylamine	75-31-0	140	141	T	nt
Acetone		67-64-1	390	391	T	T	2-Aminopyridine		504-29-0	270	271	T	nt
Acetone cyanohydrin		75-86-5	310 / 430	313 / 431	T	T	Ammonia gas		7664-41-7	350	350	T	T
Acetonitrile		75-05-8	430	431	T	T	Ammonia liquid		7664-41-7	350 / 380	350 / 380	T	nt
Acetophenone		98-86-2	390	392	T	nt	Ammonia solution	Ammonium hydroxide	1336-21-6	380	380	T	nt
Acetoxyethane	Ethyl acetate	141-78-6	220	222	T	T	Ammonium acetate		631-61-8	340	340	nt	nt
Acetyl bromide		506-96-7	110	111	T	nt	Ammonium chloride		12125-02-9	340	340	T	nt
Acetyl chloride		75-36-5	110	111	T	nt	Ammonium fluoride		12125-01-8	340	340	T	nt
Acetylene dichloride	trans-1,2-Dichloroethylene	156-60-5	260	261	T	nt	Ammonium hydroxide		1336-21-6	380	380	T	nt
Acridine		260-94-6	290	293	nt	nt	Ammonium sulfate		7783-20-2	340	340	nt	nt
Acrolein		107-02-8	120	121	T	nt	Ammonium sulfide		12135-76-1	340	340	nt	nt
Acrylamide		79-06-1	130	135	T	nt	n-Amyl acetate		628-63-7	220	222	T	nt
Acrylic acid		79-10-7	100	102	T	T	Iso-amyl alcohol	Isoamyl alcohol	123-51-3	310	312	T	nt
Acrylic acid butyl ester	n-Butyl acrylate	141-32-2	220	223	T	nt	Aniline		62-53-3	140	145	T	nt
Acrylic acid ethyl ester	Ethyl acrylate	140-88-5	220	223	T	nt	Anisoyl chloride		100-07-2	110 / 240	112 / 243	nt	nt
Acrylic acid methyl ester	Methyl acrylate	96-33-3	220	223	T	nt	Anthracene		120-12-7	290	293	T	nt
Acrylonitrile		107-13-1	430	431	T	T	Antimony pentachloride		7647-18-9	360	360	T	nt
Adipic acid		124-04-9	100	104	nt	nt	Antimony pentafluoride		7783-70-2	360	360	nt	nt
Adiponitrile		111-69-3	430	431	T	nt	Antimony trichloride		10025-91-9	340	340	nt	nt
AFFF		191681-14-8	590	590	T	nt	Arsenic acid		7778-39-4	370	370	nt	nt
Allyl alcohol		107-18-6	310	311	T	T	Arsenic pentoxide		1303-28-2	365	365	nt	nt
Allylamine		107-11-9	140	141	nt	nt	Arsenic trichloride		7784-34-1	340	340	nt	nt
Allyl bromide		106-95-6	260	265	nt	nt	Arsenic trioxide		1327-53-3	365	365	nt	nt
Allyl chloride		107-05-1	260	265	T	nt	Arsine		7784-42-1	350	350	T	nt
Allyl glycidyl ether		106-92-3	270	275	nt	nt	Azinphos	Azinphos ethyl	2642-71-9	460	462	nt	nt
Aluminum chloride		7446-70-0	360	360	T	nt	Azinphos ethyl		2642-71-9	460	462	nt	nt
Aluminum fluoride		7784-18-1	360	360	nt	nt	Barium cyanide		542-62-1	345	345	nt	nt
Aluminum hydroxide		21645-51-2	380	380	nt	nt	Benzaldehyde		100-52-7	120	122	T	nt
Aluminum nitrate		13473-90-0	340	340	nt	nt	1,2-Benzanthracene		56-55-3	290	293	nt	nt
Aluminum phosphate		7784-30-7	340	340	nt	nt	Benzene		71-43-2	290	292	T	nt
Aluminum sulfate		10043-01-3	340	340	nt	nt	1,3-Benzenediol		108-46-3	310	316	nt	nt
							Benzene hexachloride	Lindane	58-89-9	260	261	T	nt

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub-Class	Limited Use	Re-usable	Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub-Class	Limited Use	Re-usable
Benzene sulfonyl chloride		98-09-9	500	505	T	nt	Bromine pentafluoride		7789-30-2	360	360	nt	nt
Benzenethiol	Phenyl mercaptan	108-98-5	500	501	T	nt	Bromoacetonitrile		590-17-0	430	431	nt	nt
Benzidine		92-87-5	140	145 / 149	T	nt	Bromobenzene		108-86-1	260	263	nt	nt
Benzonitrile		100-47-0	430	432	T	nt	Bromochloromethane		74-97-5	260	261	T	nt
Benzophenanthrene		129-00-0	290	293	nt	nt	2-Bromoethanol		540-51-2	260 / 310	261 / 315	nt	nt
1,2-Benzophenanthrene		218-01-9	290	293	nt	nt	4-Bromofluorobenzene		460-00-4	260	263	T	nt
Benzo[a]pyrene		50-32-8	290	292 / 293	T	nt	Bromomethane	Methyl bromide	74-83-9	260	261	T	nt
Benzotrichloride		98-07-7	260	263	T	nt	1-Bromo propane		106-94-5	310	315	nt	nt
Benzoyl chloride		98-88-4	110	112	T	nt	1-Bromo-2-propanol		19686-73-8	260 / 310	261 / 315	nt	nt
Benzyl acetate		140-11-4	220	222	nt	nt	3-Bromo-1-propanol		627-18-9	260 / 310	261 / 315	nt	nt
Benzyl alcohol		100-51-6	310	312	T	nt	1,3-Butadiene		106-99-0	290	296	T	nt
Benzyl benzoate		120-51-4	220	226	nt	nt	1,4-Butanediol		110-63-4	310	314	T	nt
Benzyl bromide		100-39-0	260	266	nt	nt	1,4-Butanediol diglycidyl ether		2425-79-8	270	275	nt	nt
Benzyl chloride		100-44-7	260	266	T	nt	n-Butane		106-97-8	290	291	nt	nt
Benzyl chloroformate		501-53-1	110	113	T	nt	1,4-Butanesultone		1633-83-6	500	503	nt	nt
Beta-Chloroprene	2-Chloro-1,3-butadiene	126-99-8	260	264	T	nt	n-Butanethiol		109-79-5	500	501	nt	nt
4,4'-bis (Aminophenyl) methane	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T	nt	1-Butanol	n-Butanol	71-36-3	310	311	T	nt
Bis (2-chloroethyl) sulfide	Sulfur mustard	505-60-2	500 / 595	502 / 595	T	nt	n-Butanol		71-36-3	310	311	T	nt
Bis(chloromethyl) ether		542-88-1	240 / 260	241 / 261	nt	nt	2-Butanone	Methyl ethyl ketone	78-93-3	390	391	T	nt
Bis(chloromethyl) ketone	1,3 Dichloroacetone	534-07-6	260 / 390	261 / 391	T	nt	2-Butanone peroxide		1338-23-4	300	300	nt	nt
Bis(2-ethylhexyl) phthalate	Di (2-ethylhexyl) phthalate	117-81-7	220	226	T	nt	Butene		106-98-9	290	294	nt	nt
Bisphenol A		80-05-7	310	316	nt	nt	2-Butoxyethanol	Butyl Cellosolve®	111-76-2	240	245	T	nt
Bisphenol-A diglycidyl ether		1675-54-3	270	275	T	nt	2-Butoxyethyl acetate		112-07-2	240	245	nt	nt
Bis(tributyltin)oxide		56-35-9	470	470	nt	nt	n-Butyl acetate		123-86-4	220	222	T	nt
Black Liquor		308074-23-9	590	590	T	nt	n-Butyl acrylate		141-32-2	220	223	T	nt
Bladex®		21725-46-2	270 / 430	274 / 431	nt	nt	n-Butyl alcohol	n-Butanol	71-36-3	310	311	T	nt
Borane pyridine complex		110-51-0	590	590	T	T	sec-Butyl alcohol		78-92-2	310	312	nt	nt
Boric acid		10043-35-3	370	370	nt	nt	tert-Butyl alcohol		75-65-0	310	313	T	nt
Boron trichloride		10294-34-5	350 / 360	350 / 360	T	nt	n-Butylamine		109-73-9	140	141	T	nt
Boron trifluoride		7637-07-2	350 / 360	350 / 360	T	nt	sec-Butylamine		13952-84-6	140	141	nt	nt
Boron trifluoride diethyl etherate	Boron trifluoride etherate	109-63-7	590	590	T	nt	tert-Butylamine		75-64-9	140	141	T	nt
Boron trifluoride etherate		109-63-7	590	590	T	nt	n-Butyl benzoate		136-60-7	220	226	nt	nt
Bromine		7726-95-6	330	330	T	T	Butyl benzyl phthalate		85-68-7	220	226	nt	nt
Bromine cyanide	Cyanogen bromide	506-68-3	345 / 350	345 / 350	nt	T	n-Butyl Carbitol®		112-34-5	240	245	nt	nt
							4-tert-Butyl catechol		98-29-3	310	316	T	nt
							Butyl Cellosolve® acetate		112-07-2	240	245	nt	nt
							n-Butyl chloride		109-69-3	260	261	nt	nt



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1,3-Butylene glycol		107-88-0	310	314	nt	nt	CFC 113	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	260	261	T	nt
1,2-Butylene oxide		106-88-7	270	275	T	nt	Chemidize 727 ND		mixture	590	590	T	nt
n-Butyl ether		142-96-1	240	241	T	nt	Chlordane		57-74-9	260	261	T	nt
Butyl glycol	Butyl Cellosolve®	111-76-2	240	245	T	nt	Chlorine		7782-50-5	330 / 350	330 / 350	T	T
n-Butyl mercaptan		109-79-5	500	501	nt	nt	Chlorine cyanide		506-77-4	345	345	nt	nt
tert-Butyl mercaptan		75-66-1	500	501	nt	nt	Chlorine dioxide		10049-04-4	350	350	T	nt
tert-Butyl methyl ether	Methyl tert-butyl ether	1634-04-4	240	241	T	nt	Chlorine oxide	Chlorine dioxide	10049-04-4	350	350	T	nt
o-sec-Butylphenol		89-72-5	310	316	nt	nt	Chlorine sulfide	Sulfur dichloride	10545-99-0	500	502	T	nt
p-tert-Butylphenol		98-54-4	310	316	nt	nt	Chlorine trifluoride		7790-91-2	350	350	T	nt
n-Butyl phthalate		84-74-2	220	226	nt	nt	2-Chloroacetaldehyde		107-20-0	120 / 260	121 / 261	nt	nt
Butyl Cellosolve®		111-76-2	240	245	T	nt	Chloroacetic acid		79-11-8	100	103	T	nt
n-Butyraldehyde		123-72-8	120	121	T	nt	Chloroacetone		78-95-5	390	391	T	nt
n-Butyric acid		107-92-6	100	102	T	nt	Chloroacetonitrile		107-14-2	260 / 430	261 / 431	nt	nt
Butyrolactone, gamma-		96-48-0	220	225	T	nt	Chloroacetophenone		532-27-4	260 / 390	261 / 392	T	nt
Cadaverine		462-94-2	140	148	nt	nt	Chloroacetyl chloride		79-04-9	110	111	T	nt
Cadmium fluoroborate		14486-19-2	360	360	nt	nt	Chloroacrylonitrile		920-37-6	260 / 430	264 / 431	T	nt
Calcia		1305-78-8	380	380	nt	nt	4-Chloroaniline	p-Chloroaniline	106-47-8	140	145	T	nt
Calcium bisulfate		13780-03-5	340	340	nt	nt	o-Chloroaniline		95-51-2	140	145	nt	nt
Calcium carbonate		1317-65-3	340	340	nt	nt	p-Chloroaniline		106-47-8	140	145	T	nt
Calcium chloride		10043-52-4	340	340	T	nt	Chlorobenzene		108-90-7	260	263	T	nt
Calcium cyanide		592-01-8	345	345	nt	nt	4-Chlorobenzotrichloride		5216-25-1	260	263	T	nt
Calcium fluoride		7789-75-5	340	340	nt	nt	4-Chlorobenzotrifluoride		98-56-6	260	263	T	nt
Calcium hydroxide		1305-62-0	380	380	nt	nt	2-Chloro-1,3-butadiene		126-99-8	260	264	T	nt
Calcium oxide		1305-78-8	380	380	nt	nt	4-Chloro-m-cresol		59-50-7	260 / 310	263 / 316	nt	nt
Carbitol®	Ethylene diglycol monoethyl ether	111-90-0	240	245	T	nt	Chlorodecane mixed isomers		28519-06-4	260	261	nt	nt
Carbolic acid	Phenol	108-95-2	310	316	T	T	Chlorododecane		112-52-7	260	261	nt	nt
Carbon disulfide		75-15-0	500	502	T	T	2-Chloroethanol		107-07-3	260 / 310	261 / 315	T	nt
Carbon hexachloride		67-72-1	260	261	nt	nt	2-(2-Chloroethyl) arsenous dichloride	Lewisite	541-25-3	470 / 595	470 / 595	T	nt
Carbon monoxide		630-08-0	350	350	T	nt	2-Chloroethyl ether	Dichloroethyl ether	111-44-4	240 / 260	241 / 261	T	nt
Carbon tetrabromide		558-13-4	260	261	nt	nt	2-Chloroethyl vinyl ether		110-75-8	240 / 260	241 / 261	nt	nt
Carbon tetrachloride		56-23-5	260	261	T	nt	Chloroform		67-66-3	260	261	T	T
Carbonyl chloride	Phosgene	75-44-5	350	350	T	T	Chloromethane	Methyl chloride	74-87-3	260	261	T	nt
Caustic soda	Sodium hydroxide	1310-73-2	380	380	T	T	Chloromethyl methyl ether		107-30-2	240	241	T	nt
Cellosolve®	Ethyl Cellosolve®	110-80-5	240	245	T	nt	3-Chloro-2-methylpropene		563-47-3	260	265	nt	nt
Cellosolve® acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T	nt							
CFC 11		75-69-4	260	261	nt	nt							

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2-Chlorophenol		95-57-8	260 / 310	263 / 316	nt	nt	Cumene peroxide		80-43-3	300	300	nt	nt
3-Chlorophenol		108-43-0	260 / 310	263 / 316	nt	nt	Cupric sulfate		7758-98-7	340	340	nt	nt
4-Chlorophenol		106-48-9	260 / 310	263 / 316	T	nt	Cuprous cyanide		544-92-3	345	345	nt	nt
o-Chlorophenol		95-57-8	260 / 310	263 / 316	nt	nt	Cyanamide		420-04-2	345	345	nt	nt
p-Chlorophenol	4-Chlorophenol	106-48-9	260 / 310	263 / 316	T	nt	Cyanex®		mixture	460	461	nt	T
Chlorophenol, mixture of 2-, 3-, 4-		mixture	260 / 310	263 / 316	nt	nt	Cyanide	Hydrogen cyanide	74-90-8	345 / 370	345 / 370	T	nt
Chloropicrin		76-06-2	260	261	T	nt	Cyanizine		21725-46-2	270 / 430	274 / 431	nt	nt
Chloroprene	2-Chloro-1,3-butadiene	126-99-8	260	264	T	nt	Cyanoacetic acid		372-09-8	100	103	nt	nt
1-Chloropropane		540-54-5	260	261	nt	nt	Cyanogen		460-19-5	345	345	nt	nt
1-Chloro-2-propanol		127-00-4	260 / 310	261 / 315	nt	nt	Cyanogenamide		420-04-2	345	345	nt	nt
3-Chloro-1-propanol		627-30-5	260 / 310	261 / 315	nt	nt	Cyanogen bromide		506-68-3	345 / 350	345 / 350	nt	T
3-Chloropropene	Allyl chloride	107-05-1	260	265	T	nt	Cyanogen bromide 30%		mixture	345 / 350	345 / 350	nt	T
3-Chloropropionitrile		542-76-7	260 / 430	261 / 431	nt	nt	Cyanogen chloride		506-77-4	345	345	nt	nt
Chloropyrifos		2921-88-2	460	462	T	nt	Cyanuric chloride		108-77-0	260 / 270	263 / 274	T	nt
Chlorosulfonic acid		7790-94-5	370 / 500	370 / 504	T	T	Cyclohexane		110-82-7	290	291	T	nt
a-Chlorotoluene	Benzyl chloride	100-44-7	260	266	T	nt	Cyclohexanol		108-93-0	310	312	nt	nt
o-Chlorotoluene		95-49-8	260	263	T	nt	Cyclohexanone		108-94-1	390	391	T	nt
2-Chlorovinylarsine dichloride	Lewisite	541-25-3	470 / 595	470 / 595	T	nt	Cyclohexylamine		108-91-8	140	141	T	nt
Chromic acetate		1066-30-4	550	550	nt	nt	Cyclohexyl isocyanate		3173-53-3	210	211	T	nt
Chromic acid		1333-82-0	370	370	T	T	Cyclonol		116-02-9	310	312	nt	nt
Chromic anhydride	Chromic acid	1333-82-0	370	370	T	nt	Cyclooctadiene		1552-12-1	290	296	T	nt
Chromic sulfate		10101-53-8	340	340	nt	nt	Cyclopentane		287-92-3	290	291	nt	nt
Chromium oxide	Chromic acid	1333-82-0	370	370	T	nt	p-Cymene		25155-15-1	290	292	nt	nt
Chrysene		218-01-9	290	293	nt	nt	Decahydronaphthalene		91-17-8	290	291	nt	nt
Citric acid		77-92-9	100	104	nt	nt	n-Decanal		112-31-2	120	121	nt	nt
Coal naphtha	Benzene	71-43-2	290	292	T	nt	Decane		124-18-5	290	291	nt	nt
Copper cyanide		544-92-3	345	345	nt	nt	Decontaminating agent DS-2		mixture	590	590	T	nt
Creosote		8001-58-9	310	316	T	nt	n-Decyl aldehyde		112-31-2	120	121	nt	nt
Cresol, mixed isomers		1319-77-3	310	316	T	nt	Diallylamine		124-02-7	140	142	nt	nt
m-Cresol		108-39-4	310	316	nt	nt	p,p'-Diaminodiphenyl methane	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T	nt
m-Cresol 55%, p-Cresol 30%, Phenol 15%		mixture	310	316	T	nt	Di-n-amylamine		2050-92-2	140	142	nt	nt
o-Cresol		95-48-7	310	316	T	nt	Diazinon		333-41-5	460	462	T	nt
trans-Crotonaldehyde		123-73-9	120	121	T	nt	Diborane		19287-45-7	350	350	T	nt
Crude oil		8002-05-9	290 / 590	294 / 590	T	nt	1,4-Dibromobutane		110-52-1	260	261	nt	nt
Cumene		98-82-8	290	292	T	nt	1,2-Dibromo-3-chloropropane		96-12-8	260	261	T	nt

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1,2-Dibromoethane	Ethylene dibromide	106-93-4	260	261	T	nt	Dichlorotriazine 20%, Toluene 80%	mixture		260	263	T	nt
Dibromomethane		74-95-3	260	261	nt	nt	Diesel fuel	68334-30-5	290	291	T	nt	
Di-n-butylamine		111-92-2	140	142	nt	nt	Diesel automotive test fuel	mixture	290	291	T	nt	
Dibutyl ether	n-Butyl ether	142-96-1	240	241	T	nt	Diethanolamine	111-42-2	140	142	T	nt	
Dibutylphenol		26746-38-3	310	316	nt	nt	Diethylamine	109-89-7	140	142	T	T	
Dibutyl phthalate		84-74-2	220	226	nt	nt	Diethylaniline crude	91-66-7	140	146	T	nt	
Dichloroacetic acid		79-43-6	100	103	nt	nt	Diethyl arsine	692-42-2	470	470	nt	nt	
1,3-Dichloroacetone		534-07-6	260 / 390	261 / 391	T	nt	Diethyl carbonate	105-58-8	230	233	nt	nt	
Dichloroacetyl chloride		79-36-7	110	111	T	nt	2,2'-Diethyldihexylamine	106-20-7	140	142	nt	nt	
Dichloroacetylene	trans-1,2-Dichloroethylene	156-60-5	260	264	T	nt	1,4-Diethylenediamine	110-85-0	270	274	nt	nt	
3,4-Dichloroaniline		95-76-1	140 / 260	145 / 263	T	nt	Diethylene dioxide	1,4-Dioxane	123-91-1	270	278	T	nt
1,2-Dichlorobenzene		95-50-1	260	263	nt	nt	Diethylene glycol	111-46-6	310	314	nt	nt	
3,3'-Dichlorobenzidine		91-94-1	140 / 260	149 / 263	nt	nt	Diethylene glycol monomethyl ether	111-77-3	240	245	nt	nt	
1,4-Dichloro-2-butene		110-57-6	260	264	T	nt	Diethylenetriamine	111-40-0	140	148	T	nt	
trans-1,4-Dichloro-2-		764-41-0	260	264	T	nt	N,N-Diethylethanolamine	100-37-8	140	143	nt	nt	
1,1-Dichloroethane		75-34-3	260	261	nt	nt	Diethyl ether	Ethyl ether	60-29-7	240	241	T	nt
1,2-Dichloroethane		107-06-2	260	261	T	nt	Di (2-ethylhexyl) phthalate	117-81-7	220	226	T	nt	
1,2-Dichloroethene	1,2-Dichloroethylene	540-59-0	260	264	nt	T	Diethylhydrazine	1615-80-1	280	280	nt	nt	
1,1-Dichloroethylene	Vinylidene chloride	75-35-4	260	264	T	nt	Diethyl phthalate	84-66-2	220	226	nt	nt	
1,2-Dichloroethylene		540-59-0	260	264	nt	T	Diethyl sulfate	64-67-5	500	507	T	nt	
Dichloroethylene, all isomers		25323-30-2	260	264	nt	nt	Diethyl-m-toluidine crude	91-67-8	140	145	T	nt	
trans-1,2-Dichloroethylene		156-60-5	260	261	T	nt	Dihydrogen Oxide	7732-18-5	590	590	nt	nt	
Dichloroethyl ether		111-44-4	240 / 260	241 / 261	T	nt	Diisobutylamine	111-92-2	140	142	nt	nt	
Dichloroisopropyl ether		108-60-1	240 / 260	241 / 261	nt	nt	Diisobutyl ketone	108-83-8	390	391	nt	nt	
2,3-Dichloro-6-isopropyl-S-triazine		30894-74-7	270	274	T	nt	Diisobutyl phthalate	84-69-5	220	226	nt	nt	
Dichloromethane		75-09-2	260	261	T	T	1,6-Diisocyanatohexane	1,6-Hexamethylene diisocyanate	822-06-0	210	211	T	nt
sym-Dichloromethyl ether		542-88-1	240 / 260	241 / 261	nt	nt	Diisopropylamine	108-18-9	140	142	nt	nt	
2,4-Dichlorophenol		120-83-2	260 / 310	263 / 316	nt	nt	Dimethoxane	828-00-2	270	278	nt	nt	
1,2-Dichloropropane	Propylene dichloride	78-87-5	260	261	T	nt	N,N-Dimethylacetamide	127-19-5	130	132	T	nt	
1,3-Dichloro-2-propanone	1,3 Dichloroacetone	534-07-6	260 / 390	261 / 391	T	nt	Dimethylamine	124-40-3	140	142	T	nt	
1,3-Dichloropropene		542-75-6	260	261	T	nt	2-Dimethyl aminoethanol	108-01-0	140	143	nt	nt	
2,3-Dichloropropene		78-88-6	260	261	T	nt	3-Dimethyl aminopropylamine	109-55-7	140	148	nt	nt	
Dichlorosilane		4109-96-0	480	480	T	nt	N,N-Dimethylaniline	121-69-7	140	146	T	nt	
Dichlorosulfane	Sulfur dichloride	10545-99-0	500	502	T	nt	1,3-Dimethyl butylamine	108-09-8	140	143	nt	nt	
1,1-Dichlorotetrafluoroethane		374-07-2	260	261	T	nt							

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Dimethyldichlorosilane		75-78-5	480	480	T	nt	tert-Dodecyl mercaptan		25103-58-6	500	501	nt	nt
Dimethyl disulfide		624-92-0	500	502	T	nt	Dowtherm A		8004-13-5	590	590	T	nt
Dimethylene oxide	Ethylene oxide	75-21-8	270	275	T	T	DuPont Activators with hexamethylene diisocyanate	mixture		210 / 590	211 / 590	T	nt
Dimethyl ether		115-10-6	240	241	T	nt	Epibromohydrin		3132-64-7	270	275	nt	nt
N,N-Dimethylformamide		68-12-2	130	132	T	T	Epichlorohydrin		106-89-8	260 / 270	261 / 275	T	T
1,1-Dimethylhydrazine		57-14-7	280	280	T	nt	1,2-Epoxybutane		106-88-7	270	275	nt	nt
Dimethyl maleate		624-48-6	220	224	T	nt	1,2-Epoxyethane	Ethylene oxide	75-21-8	270	275	T	T
Dimethylmorpholine		141-91-3	140	142	nt	nt	Epoxypropane	1,2-Propylene oxide	75-56-9	270	275	T	nt
Dimethyl nitrosamine		62-75-9	450	450	T	nt	1,2-Epoxy-3-(tolxy)propane		26447-14-3	270	275	nt	nt
2,4-Dimethylphenol		105-67-9	310	316	nt	nt	Epoxytrichloropropane		67664-94-2	270	275	nt	nt
Dimethylphenylamine		1300-73-8	140	145	nt	nt	Epsom salts		7487-88-9	340	340	nt	nt
Dimethyl phthalate		131-11-3	220	226	nt	nt	Ethanal	Acetaldehyde	75-07-0	120	121	T	nt
Dimethyl sulfate		77-78-1	500	507	T	T	Ethanol		64-17-5	310	311	T	nt
Dimethyl sulfide		75-18-3	500	502	T	nt	Ethanolamine		141-43-5	140 / 310	141 / 311	T	nt
Dimethyl sulfoxide		67-68-5	500	503	T	nt	2-Ethoxyethanol	Ethyl Cellosolve®	110-80-5	240	245	T	nt
Dimethyl terephthalate		120-61-6	220	226	nt	nt	2-(2-Ethoxyethoxy) ethanol	Ethylene diglycol monoethyl ether	111-90-0	240	245	T	nt
Dimethylvinyl chloride		513-37-1	260	264	nt	nt	2-Ethoxyethyl acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T	nt
Dinitro-o-cresol		534-52-1	310 / 440	316 / 442	T	nt	Ethyl acetate		141-78-6	220	222	T	T
Dinitrophenol		25550-58-7	310 / 440	316 / 442	nt	nt	Ethyl acetoacetate		141-97-9	220	222	nt	nt
Di-n-octyl phthalate		117-84-0	220	226	nt	nt	Ethyl acrylate		140-88-5	220	223	T	nt
1,4-Dioxane		123-91-1	270	278	T	nt	Ethyl alcohol	Ethanol	64-17-5	310	311	T	nt
Dioxin		1746-01-6	260	263	nt	nt	Ethylamine		75-04-7	140	141	T	nt
1,3-Dioxolane		646-06-0	240	241	nt	nt	Ethyl benzene		100-41-4	290	290	T	nt
Dipentene		138-86-3	290	296	nt	nt	Ethyl benzene 80%, 4,6-Dinitro-o-cresol 20%	mixture		590	590	T	nt
Dipentyl amine		2050-92-2	140	142	nt	nt	Ethyl benzene hydroperoxide		3071-32-7	300	300	T	nt
Diphenylamine		122-39-4	140	146	nt	nt	Ethyl benzoate		93-89-0	220	226	nt	nt
4,4'-Diphenyl methane diisocyanate		101-68-8	210	212	T	nt	2-Ethylbutylamine		617-79-8	140	141	nt	nt
n-Dipropylamine		142-84-7	140	142	nt	nt	Ethyl carbamate		51-79-6	230	233	nt	nt
Disodium sulfite		7757-83-7	340	340	nt	nt	Ethyl Carbitol®	Ethylene diglycol monoethyl ether	111-90-0	240	245	T	nt
Disulfur dichloride		10025-67-9	500	502	T	nt	Ethyl Cellosolve®		110-80-5	240	245	T	nt
Divinyl benzene		1321-74-0	290	292	nt	nt	Ethyl Cellosolve® acetate		111-15-9	240	245	T	nt
DMAC	N,N-Dimethylacetamide	127-19-5	130	132	T	nt							
DMF	N,N-Dimethylformamide	68-12-2	130	132	T	T							
DMSO	Dimethyl sulfoxide	67-68-5	500	503	T	nt							
tert-Dodecanethiol		25103-58-6	500	501	nt	nt							
Dodecyl benzene sulfonate		25155-30-0	500	507	nt	nt							

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Ethyl chloride		75-00-3	260	261	T	nt	Ferric chloride		7705-08-0	340	340	T	nt
Ethyl cyanide		107-12-0	345	345	nt	nt	Ferric fluoride		7783-50-8	340	340	nt	nt
Ethylene		74-85-1	290	294	T	nt	Ferrous chloride		7758-94-3	340	340	T	nt
Ethylenediamine		107-15-3	140	148	T	nt	Fluorene		86-73-7	290	293	nt	nt
Ethylene dibromide		106-93-4	260	261	T	nt	Fluorine		7782-41-4	350	350	T	nt
Ethylene dichloride	1,2-Dichloroethane	107-06-2	260	261	T	nt	Fluoroacetamide		640-19-7	130	132	nt	nt
Ethylene diglycol monoethyl ether		111-90-0	240	245	T	nt	Fluorobenzene		462-06-6	260	263	T	nt
Ethylene glycol		107-21-1	310	314	T	nt	Fluoroboric acid		16872-11-0	370	370	T	nt
Ethylene glycol acrylate	Hydroxyethyl acrylate	818-61-1	220	223	T	nt	Fluorosilicic acid		16961-83-4	370	370	T	nt
Ethylene glycol diacetate		111-55-7	220	222	nt	nt	Fluorosulfonic acid		7789-21-1	370	370	T	nt
Ethylene glycol monoacetate		542-59-6	220	222	nt	nt	Fluorosulfuric acid	Fluorosulfonic acid	7789-21-1	370	370	T	nt
Ethylene glycol monomethyl ether	Methyl Cellosolve® acetate	110-49-6	240	245	T	nt	Fluosilicic acid	Fluorosilicic acid	16961-83-4	370	370	T	nt
Ethylene glycol monopropyl ether		2807-30-9	240	245	nt	nt	Formaldehyde		50-00-0	120	121	T	nt
Ethyleneimine		151-56-4	270	274	T	nt	Formalin		50-00-0	120	121	T	nt
Ethylene oxide gas		75-21-8	270	275	T	nt	Formamide		75-12-7	130	132	nt	nt
Ethylene oxide liquid		75-21-8	270	275	T	T	Formic acid		64-18-6	100	102	T	T
Ethylene oxide, 10% in HCFC 124		mixture	270	274	T	nt	Fuel oil		mixture	290	291	T	nt
Ethylenylbenzene	Styrene	100-42-5	290	292	T	nt	Fuel Oil #2	Diesel fuel	68334-30-5	290	291	T	nt
Ethyl ether		60-29-7	240	241	T	nt	Fuming sulfuric acid	Oleum	8014-95-7	370	370	T	nt
Ethyl fluoroacetate		459-72-3	220	222	nt	nt	2-Furaldehyde		98-01-1	120 / 270	122 / 277	T	T
Ethyl hexaldehyde		123-05-7	120	121	nt	nt	Furan		110-00-9	270	277	nt	nt
2-Ethylhexanoic acid		149-57-5	100	102	nt	nt	2-Furancarbal	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T	T
2-Ethylhexanol		104-76-7	310	311	nt	nt	2-Furancarboraldehyde	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T	T
2-Ethylhexyl acrylate		103-11-7	220	223	nt	nt	Furfural	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T	T
2-Ethylhexylamine		104-75-6	140	141	nt	nt	Furfuryl alcohol		98-00-0	310	318	nt	nt
Ethyl iodide		75-03-6	260	261	nt	nt	2-Furyl methanol		98-00-0	310	318	nt	nt
Ethyl mercaptan		75-08-1	500	501	nt	nt	GA	Tabun	77-81-6	460 / 595	462 / 595	T	nt
Ethyl methacrylate		97-63-2	220	223	T	nt	gamma-Butyrolactone	Butyrolactone	96-48-0	220	225	T	nt
Ethyl methanesulfonate		62-50-0	500	507	nt	nt	Gasoline		86290-81-5	290	291 / 292	T	nt
Ethyl parathion		56-38-2	460	462	T	nt	GB	Sarin	107-44-8	460 / 595	462 / 595	T	nt
Ethylphenol		90-00-6	310	316	nt	nt	GD	Soman	96-64-0	460 / 595	462 / 595	T	nt
2-Ethyltoluene		611-14-3	290	292	nt	nt	Glade Intech 200		unk	590	590	T	nt
Ethyl vinyl ether		109-92-2	240 / 260	246 / 261	T	nt	Glutaraldehyde		111-30-8	120	121	T	nt
							Glycerine		56-81-5	310	314	T	nt
							Glycerol	Glycerine	56-81-5	310	314	T	nt
							Glycidaldehyde		765-34-4	270	275	nt	nt
							Glycolic acid, sat. sol.in water		79-14-1	100	103	T	nt

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Glycol monobutyl ether	Butyl Cellosolve®	111-76-2	240	245	T	nt	Hydrazobenzene		122-66-7	280	280	nt	nt
Glycol monoethyl ether acetate	Ethyl Cellosolve® acetate	111-15-9	240	245	T	nt	Hydriodic acid		10034-85-2	370	370	T	nt
Grain alcohol	Ethanol	64-17-5	310	311	T	nt	Hydriodic ether		75-03-6	260	261	nt	nt
Green liquor		68131-30-6	590	590	T	nt	Hydrobromic acid		10035-10-6	370	370	T	nt
Guthion ethyl	Azinphos ethyl	2642-71-9	460	462	T	nt	Hydrochloric acid		7647-01-0	370	370	T	T
Halothane		151-67-7	260	261	nt	nt	Hydrocyanic acid	Hydrogen cyanide liquid	74-90-8	345 / 370	345 / 370	T	T
HD	Sulfur mustard	505-60-2	500 / 595	502 / 595	T	nt	Hydrofluoric acid		7664-39-3	370	370	T	T
Heating oil	Diesel fuel	68334-30-5	290	291	T	nt	Hydrofluorosilicic acid	Fluorosilicic acid	16961-83-4	370	370	T	nt
n-Heptane		142-82-5	290	291	T	nt	Hydrogen bromide		10035-10-6	350 / 370	350 / 370	T	nt
Hexachlorobenzene		118-74-1	260	263	nt	nt	Hydrogen chloride gas		7647-01-0	350	350	T	T
Hexachlorobutadiene		87-68-3	260	264	T	nt	Hydrogen cyanide gas		74-90-8	345 / 350	345 / 350	T	T
Hexachlorocyclopentadiene		77-47-4	260	264	T	nt	Hydrogen cyanide liquid		74-90-8	345 / 370	345 / 370	T	T
Hexachloroethane		67-72-1	260	261	nt	nt	Hydrogen fluoride gas		7664-39-3	350	350	T	T
1,1,1,3,3,3-Hexachloropropane		3607-78-1	260	264	T	nt	Hydrogen fluoride liquid		7664-39-3	350 / 370	350 / 370	T	T
Hexachloropropene		1888-71-7	260	264	nt	nt	Hydrogen peroxide		7722-84-1	300	300	T	nt
Hexafluoroethane		76-16-4	260	261	T	nt	Hydrogen selenide		7783-07-5	350	350	T	nt
Hexafluoroisobutylene		382-10-5	260	261	T	nt	Hydrogen sulfide		7783-06-4	350 / 500	350 / 502	T	nt
Hexaldehyde		66-25-1	120	121	nt	nt	Hydroquinone		123-31-9	310	316	nt	nt
Hexamethyldisilazane		999-97-3	140 / 480	142 / 480	T	nt	Hydrosilicofluoric acid	Fluorosilicic acid	1696-83-4	370	370	T	nt
Hexamethylene diamine		124-09-4	140	148	T	nt	Hydroxybenzene	Phenol	108-95-2	310	316	T	nt
Hexamethylene diisocyanate		822-06-0	210	211	T	nt	Hydroxyethyl acrylate		818-61-1	220	223	T	nt
Hexamethylene diisocyanate in DuPont Activators	mixture		590	590	T	nt	Hydroxylamine sulfate		10039-54-0	500	507	nt	nt
Hexamethylenetriamine		100-97-0	270	274	nt	nt	Hypophosphorus acid		6303-21-5	370	370	T	nt
Hexamine		100-97-0	270	274	nt	nt	Iodine		7553-56-2	330	330	T	nt
1-Hexanal		66-25-1	120	121	nt	nt	Iodine, molten		7553-56-2	330	330	nt	T
n-Hexane		110-54-3	290	291	T	T	Iodomethane	Methyl iodide	74-88-4	260	261	T	nt
1-Hexene		592-41-6	290	294	T	nt	Isoamyl alcohol		123-51-3	310	312	T	nt
Hexyl alcohol		111-27-3	310	311	nt	nt	Isobutane		75-28-5	290	291	T	nt
HF	Hydrogen fluoride	7664-39-3	350	350	T	T	Isobutanol		78-83-1	310	311	T	nt
HMDI	1,6-Hexamethylene diisocyanate	822-06-0	210	211	T	nt	Isobutyl acrylate		106-63-8	220	223	nt	nt
Hydrazine		302-01-2	280	280	T	T	Isobutyl alcohol	Isobutanol	78-83-1	310	311	T	nt
Hydrazine hydrate		10217-52-4	280	280	T	nt	Isobutylamine		78-81-9	140	141	nt	nt
							Isobutylbenzene		538-93-2	290	292	T	nt
							Isobutyl nitrite		542-56-3	430	431	nt	nt
							Isobutyraldehyde		78-84-2	120	121	nt	nt
							Isocetdehyde		63885-09-6	120	121	nt	nt
							Isocyanuric chloride		87-90-1	270	274	nt	nt
							Isocetane		592-27-8	290	291	nt	nt

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Isopentane		78-78-4	290	291	nt	nt	Lithium hydroxide		1310-65-2	380	380	T	nt
Isopentyl alcohol	Isoamyl alcohol	123-51-3	310	311	T	nt	Lupronate®	Polymethylene polyphenylpolyisocyanate	9106-87-9	210	212	T	nt
Isophorone		78-59-1	390	391	nt	nt	Magnesium sulfate		7487-88-9	340	340	nt	nt
Isophorone diisocyanate		4098-71-9	210	211	T	nt	Malathion		121-75-5	460	462	T	nt
Isoprene		78-79-5	290	296	T	nt	Maleic acid		110-16-7	100	104	T	nt
Isopropanol		67-63-0	310	312	T	nt	Maleic anhydride		108-31-6	160	161	T	nt
Isopropyl acetate		108-21-4	220	222	nt	nt	Malic acid		6915-15-7	100	104	nt	nt
Isopropyl alcohol	Isopropanol	67-63-0	310	312	T	nt	MDA	4,4'-Methylene dianiline	101-77-9	140	145 / 149	T	nt
Isopropylamine		75-31-0	140	141	T	nt	MEK	Methyl ethyl ketone	78-93-3	390	391	T	nt
Isopropyl benzene	Cumene	98-82-8	290	292	T	nt	p-Mentha-1,8-diene	d-Limonene	5989-27-5	290	296	T	nt
Isopropyl chloride		75-29-6	260	261	nt	nt	Mercaptoacetic acid	Thioglycolic acid	68-11-1	100 / 500	103 / 501	T	nt
Isopropyl ether		108-20-3	240	241	nt	nt	Mercuric chloride		7487-94-7	340	340	T	nt
4,4'-Isopropylidene diphenol		80-05-7	310	316	nt	nt	Mercuric cyanide		592-04-1	345	345	nt	nt
Isopropyl methacrylate		4655-34-9	220	223	nt	nt	Mercury		7439-97-6	330	330	T	nt
Isopropyl methane-fluorophosphonate	Sarin	107-44-8	460 / 595	462 / 595	T	nt	Mesityl oxide		141-79-7	390	391	T	nt
Isovaleraldehyde		590-86-3	120	121	nt	nt	Methacrylamide		79-39-0	130	135	nt	nt
Jet A fuel		8008-20-6	290	291	T	nt	Methacrylic acid		79-41-4	100	102	T	nt
JP-4 jet fuel	mixture		290	291	T	nt	Methacrylonitrile		126-98-7	430	431	nt	nt
JP-8 jet fuel		8008-20-6	290	291	T	nt	Methane		74-82-8	290	291	T	nt
Kerosene		8008-20-6	290	291	T	nt	Methanesulfonic acid		75-75-2	500	504	T	nt
L	Lewisite	541-25-3	470 / 595	470 / 595	T	nt	Methanethiol	Methyl mercaptan	74-93-1	500	501	T	nt
Lactic acid		50-21-5	100	103	nt	nt	Methanoic acid	Formic acid	64-18-6	100	102	T	T
Lannate® LV	Methomyl	16752-77-5	230	233	T	nt	Methanol		67-56-1	310	311	T	T
Lauric acid		143-07-7	100	102	nt	nt	Methomyl		16752-77-5	230	233	T	nt
Lead fluoroborate		13814-96-5	340	340	nt	nt	2-Methoxyethanol	Methyl Cellosolve®	109-86-4	240	245	T	nt
Lead sulfate		7446-14-2	340	340	nt	nt	2-Methoxyethyl acetate	Methyl Cellosolve® acetate	110-49-6	240	245	T	nt
Lewisite (L) Chemical Agent		541-25-3	470 / 595	470 / 595	T	nt	1-Methoxy-2-propanol		107-98-2	240	245	nt	nt
Ligroine	VM&P naphtha	8032-32-4	290	291	T	nt	Methyl acetate		79-20-9	220	222	nt	nt
Lime hydrate		1305-62-0	380	380	nt	nt	Methyl acrylate		96-33-3	220	223	T	nt
d-Limonene		5989-27-5	290	296	T	nt	Methylacrylic acid		777-77-7	300	300	nt	nt
Lindane		58-89-9	260	261	T	nt	2-Methylactonitrile	Acetone cyanohydrin	75-86-5	310 / 430	313 / 431	T	nt
Linoleic acid		60-33-3	100	102	nt	nt	Methyl alcohol	Methanol	67-56-1	310	311	T	T
Lithium chloride		7447-41-8	340	340	T	nt	Methylamine		74-89-5	140	141	T	nt
Lithium chromate		14307-35-8	340	340	nt	nt	Methyl aminopropylamine		6291-84-5	140	148	nt	nt
							2-Methylaniline	o-Toluidine	95-53-4	140	145	T	nt

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N-Methylaniline		100-61-8	140	146	nt	nt	Methyl parathion		298-00-0	460	462	T	nt
2-Methylbenzenethiol		137-06-4	500	501	nt	nt	2-Methyl-1,5-pentanedinitrile	Methylglutaronitrile	4553-62-2	430	431	T	nt
Methyl bromide		74-83-9	260	261	T	nt	4-Methyl-2-pentanone	Methyl isobutyl ketone	108-10-1	390	391	T	nt
Methyl tert-butyl ether		1634-04-4	240	241	T	nt	2-Methyl-1,3-propanediol		2163-42-0	310	314	T	nt
Methyl n-butyl ketone		591-78-6	390	391	nt	nt	2-Methyl-2-propanethiol		75-66-1	500	501	nt	nt
Methyl carbitol		111-77-3	240	245	nt	nt	2-Methyl-1-propanol	Isobutanol	78-83-1	310	311	T	nt
Methyl Cellosolve®		109-86-4	240	245	T	nt	2-Methylpropenoic acid	Methacrylic acid	79-41-4	100	102	T	nt
Methyl Cellosolve® acetate		110-49-6	240	245	T	nt	2-Methyl pyridine	2-Picoline	109-06-8	270	271	T	nt
Methyl chloride		74-87-3	260	261	T	nt	n-Methyl-2-pyrrolidone		872-50-4	130	132	T	nt
Methyl chloroacetate		96-34-4	220	222	nt	nt	Methyl salicylate		119-36-8	220	226	T	nt
Methyl chloroform	1,1,1-Trichloroethane	71-55-6	260	261	T	nt	Methylstyrene		25013-15-4	290	292	nt	nt
Methyl chloroformate		79-22-1	110	113	T	nt	Methyl sulfate		75-93-4	500	507	nt	nt
Methylene bis (cyclohexylisocyanate)		5124-30-1	210	211	nt	nt	Methyl sulfide	Dimethyl sulfide	75-18-3	500	502	T	nt
4,4'-Methylene bis (o-chloroaniline)		101-14-4	140	149	T	nt	Methyl sulfoxide	Dimethyl sulfoxide	67-68-5	500	503	T	nt
Methylene bromide		74-95-3	260	261	nt	nt	Methyl trichlorosilane		75-79-6	480	480	T	nt
Methylene chloride	Dichloromethane	75-09-2	260	261	T	T	Methyltriglycol		112-35-6	240	245	nt	nt
4,4'-Methylene dianiline		101-77-9	140	145 / 149	T	nt	Mineral oil		8012-95-1	290	291	T	nt
N-Methylethanolamine		109-83-1	140	142	nt	nt	Mineral spirits		64475-85-0	290	291	T	nt
Methyl ether	Dimethyl ether	115-10-6	240	241	T	nt	Monoethanolamine	Ethanolamine	141-43-5	140 / 310	141 / 311	T	nt
Methyl ethyl ketone		78-93-3	390	391	T	nt	Monomethylamine	Methylamine	74-89-5	140	141	T	nt
Methyl ethyl ketone peroxide		1338-23-4	300	300	nt	nt	Monomethylhydrazine	Methylhydrazine	60-34-4	280	280	T	nt
Methyl ethyl ketoxime		96-29-7	590	590	T	nt	Morpholine		110-91-8	140	142	T	nt
Methyl ethyl pyridine		104-90-5	270	271	nt	nt	MTBE	Methyl-t-butyl ether	1634-04-4	240	241	T	nt
Methyl fluoride		593-53-3	260	261	T	nt	Muriatic acid	Hydrochloric acid	7647-01-0	370	370	T	T
Methyl formate		107-31-3	220	221	T	nt	Mustard gas	Sulfur mustard	505-60-2	500 / 595	502 / 595	T	nt
2-Methylglutaronitrile		4553-62-2	430	431	T	nt	Naphtha		8030-30-6	290	291	T	nt
Methylhydrazine		60-34-4	280	280	T	nt	Naphthalene		91-20-3	290	293	T	nt
Methyl iodide		74-88-4	260	261	T	T	Naphthylamine		134-32-7	140	145	nt	nt
Methyl isobutyl carbinol		108-11-2	310	312	nt	nt	Nerve gas	Sarin	107-44-8	460 / 595	462 / 595	T	nt
Methyl isobutyl ketone		108-10-1	390	391	T	nt	Nickel carbonyl		13463-39-3	470	470	T	nt
Methyl isocyanate		624-83-9	210	211	T	nt	Nickel chloride		7718-54-9	340	340	nt	nt
Methyl mercaptan		74-93-1	500	501	T	nt	Nickel cyanide		557-19-7	345	345	nt	nt
N-Methyl methacrylamide		3887-02-3	130	135	T	nt	Nicotine		54-11-5	270	271	T	nt
Methyl methacrylate		80-62-6	220	223	T	nt	Nitric acid		7697-37-2	370	370	T	nt
							Nitric acid, red fuming		52583-42-3	370	370	T	nt
							Nitric oxide		10102-43-9	350	350	T	nt
							Nitrobenzene		98-95-3	440	441	T	T

For additional information go to [www.personalprotection.dupont.com](http://www.personalprotection.dupont.com) or call 1-800-931-3456.

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Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub-Class	Limited Use	Re-usable	Chemical Name	Name in Data Table (if Synonym)	CAS Number	Class	Sub-Class	Limited Use	Re-usable
o-Nitrochlorobenzene		88-73-3	260 / 440	263 / 442	T	nt	Paraformaldehyde		30525-89-4	120	121	nt	nt
p-Nitrochlorobenzene		100-00-5	260 / 440	263 / 442	T	nt	Paraldehyde		123-63-7	120	121	nt	nt
Nitroethane		79-24-3	440	441	nt	nt	Paraphenylene diisocyanate (PPDI) crude		104-49-4	210	212	T	nt
Nitrogen dioxide		10102-44-0	350	350	T	nt	Parathion	Ethyl parathion	56-38-2	460	462	T	nt
Nitrogen tetroxide		10544-72-6	350	350	T	nt	PCB		11097-69-1	260	263	T	nt
Nitrogen trifluoride		7783-54-2	350	350	T	nt	Pentachloroethane		76-01-7	260	261	nt	nt
Nitroglycerine		55-63-0	440	442	nt	nt	Pentachlorophenol		87-86-5	310	316	T	nt
Nitromethane		75-52-5	440	441	T	nt	1,3-Pentadiene		504-60-9	290	296	nt	nt
2-Nitrophenol		88-75-5	310 / 440	316 / 442	T	nt	1,5-Pentanediamine		462-94-2	140	148	nt	nt
1-Nitropropane		108-03-2	440	441	nt	nt	2-Pentanol		6032-29-7	310	312	nt	nt
2-Nitropropane		79-46-9	440	441	T	nt	n-Pentanol		71-41-0	310	311	nt	nt
Nitrosyl chloride		2696-92-6	350	350	nt	nt	2-Pentenitrile		25899-50-7	430	431	T	T
Nitrotoluene, mixture		1321-12-6	440	442	nt	nt	cis-2-Pentenitrile		13284-42-9	430	431	T	T
m-Nitrotoluene		99-08-1	440	442	nt	nt	3-Pentenitrile		4635-87-4	430	431	T	nt
o-Nitrotoluene		88-72-2	440	442	T	nt	Perchloric acid		7601-90-3	370	370	T	nt
p-Nitrotoluene		99-99-0	440	442	T	nt	Perchloroethylene	1,1,2,2-Tetrachloroethylene	127-18-4	260	264	T	T
Nitrous oxide		10024-97-2	350	350	T	nt	Perclene	1,1,2,2-Tetrachloroethylene	127-18-4	260	261	T	nt
Nonylamine		112-20-9	140	141	T	nt	Peroxyacetic acid		79-21-0	300	300	nt	nt
n-Nonyl phenol		25154-52-3	310	316	nt	nt	Petroleum distillate	JP-8 jet fuel	94114-58-6	290	291	T	nt
n-Octane		111-65-9	290	291	T	nt	Petroleum ether	VM&P Naphtha	8030-32-4	290	291	T	nt
Octanoic acid		124-07-2	100	102	T	nt	Petroleum spirits	Mineral spirits	64475-85-0	290	291	T	nt
1-Octanol		111-87-5	310	311	nt	nt	Phenanthrene		85-01-8	290	293	nt	nt
n-Octanol		111-87-5	310	311	nt	nt	Phenanthrin		85-01-8	290	293	nt	nt
n-Octylamine		111-86-4	140	141	nt	nt	Phenol		108-95-2	310	316	T	T
Oleic acid		112-80-1	100	102	nt	nt	Phenyl bromide		108-86-1	260	263	nt	nt
Oleum		8014-95-7	370	370	T	T	m-Phenylenediamine		108-45-2	140	149	nt	nt
Organo-Tin Paint		mixture	470	470	T	nt	Phenethyl alcohol		60-12-8	310	318	T	nt
Orthoarsenic acid		1303-28-2	365	365	nt	nt	a-Phenylethyl alcohol		98-85-1	310	318	T	nt
Otto Fuel II		106602-80-6	590	590	T	nt	Phenylethylene	Styrene	100-42-5	290	292	T	nt
Oxalic acid		144-62-7	100	104	T	nt	Phenyl glycidyl ether		122-60-1	270	275	T	nt
Oxalic acid dihydrate		6153-56-6	100	104	T	nt	Phenyl hydrazine		100-63-0	280	280	nt	nt
Oxamyl		23135-22-0	130	137	nt	nt	Phenyl hydroxide	Phenol	108-95-2	310	316	T	T
Oxybismethane	Dimethyl ether	115-10-6	240	241	T	nt	Phenyl isocyanate		103-71-9	210	212	T	nt
4,4'-Oxydianiline		101-80-4	140	149	nt	nt	Phenyl mercaptan		108-98-5	500	501	T	nt
Palmitic acid		57-10-3	100	102	nt	nt							
Parabromofluorobenzene	4-Bromofluorobenzene	460-00-4	260	263	T	nt							
Parachlorobenzotrchloride	4-Benzotrchloride	5216-25-1	260	263	T	nt							
Parachlorobenzotrifluoride	4-Clorobenzotrifluoride	98-56-6	260	263	T	nt							

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Phenyl trichlorosilane	Trichlorophenylsilane	98-13-5	480	480	T	nt	Propionic acid		79-09-4	100	102	T	nt
Phosgene		75-44-5	350	350	T	T	Propionic anhydride		123-62-6	160	161	nt	nt
Phosphine		7803-51-2	350	350	T	nt	Propionyl chloride		79-03-8	110	111	nt	
Phosphoric acid		7664-38-2	370	370	T	nt	2-Propoxyethanol		2807-30-9	240	245	nt	nt
Phosphoric anhydride		1314-56-3	370	370	nt	nt	Propyl acetate		109-60-4	220	222	nt	nt
Phosphorus oxychloride		10025-87-3	360	360	T	nt	n-Propyl alcohol	n-Propanol	71-23-8	310	311	T	nt
Phosphorus pentoxide		1314-56-3	370	370	nt	nt	n-Propylamine		107-10-8	140	141	T	nt
Phosphorus trichloride		7719-12-2	360	360	T	nt	Propyl Cellosolve®		2807-30-9	240	245	T	nt
Phosphoryl chloride	Phosphorus oxychloride	10025-87-3	360	360	T	nt	Propyl chloride		540-54-5	260	261	nt	nt
2-Picoline		109-06-8	270	271	T	nt	Propylene chloride	Propylene dichloride	78-87-5	260	261	T	nt
3-Picoline		108-99-6	270	271	T	nt	Propylene diamine		78-90-0	140	148	nt	nt
alpha-Picoline	2-Picoline	109-06-8	270	271	T	nt	Propylene dichloride		78-87-5	260	261	T	nt
Picric acid		88-89-1	310 / 440	316 / 440	nt	nt	Propylene glycol		57-55-6	310	314	T	nt
Piperazine		110-85-0	270	274	nt	nt	Propyleneimine		75-55-8	270	274	nt	nt
Piperidine		110-89-4	270	274	nt	nt	1,2-Propylene oxide		75-56-9	270	275	T	nt
Polychlorinated biphenyls	PCB	11097-69-1	260	263	T	nt	Propyl methacrylate		2210-28-8	220	223	nt	nt
Polymethylene poly-phenylpolyisocyanate		9106-87-9	210	212	T	nt	Prussic acid	Hydrogen cyanide liquid	74-90-8	345 / 470	345 / 470	T	T
Potash	Potassium carbonate	584-08-7	340	340	T	nt	Pyrene		129-00-0	290	293	nt	nt
Potassium acetate		127-08-2	340	340	T	nt	Pyridine		110-86-1	270	271	T	nt
Potassium binoxalate	Potassium acetate	127-08-2	340	340	T	nt	Pyromucic aldehyde	2-Furaldehyde	98-01-1	120 / 270	122 / 277	T	T
Potassium carbonate		584-08-7	340	340	T	nt	Pyrrole		109-97-7	270	274	nt	nt
Potassium chloride		3811-04-9	340	340	nt	nt	Pyrrolidine		123-75-1	270	274	T	nt
Potassium chromate		7789-00-6	340	340	T	nt	Quick silver	Mercury	7439-97-6	330	330	T	nt
Potassium cyanide		151-50-8	345	345	T	nt	Quinoline		91-22-5	270	274	nt	nt
Potassium fluoride		7789-23-3	340	340	nt	nt	Red fuming nitric acid	Nitric acid, red fuming	7697-37-2	370	370	T	nt
Potassium hydroxide		1310-58-3	380	380	T	nt	Resorcinol		108-46-3	310	316	nt	nt
Potassium oxalate		583-52-8	340	340	nt	nt	Sarin		107-44-8	460 / 595	462 / 595	T	nt
Potassium permanganate		7722-64-7	340	340	T	nt	Selenious acid		7783-00-8	370	370	nt	nt
Potassium persulfate		7727-21-1	340	340	nt	nt	Silane		7803-62-5	480	480	T	nt
PPDI	Paraphenylene diisocyanate	104-49-4	210	212	T	nt	Silicon tetrachloride		10026-04-7	360 / 480	360 / 480	T	nt
Propane		74-98-6	290	291	T	nt	Silicon tetrahydride	Silane	7803-62-5	480	480	T	nt
n-Propanol		71-23-8	310	311	T	nt	Skydrol®		95660-51-8	460	462	T	nt
Propanoyl chloride		79-03-8	110	111	nt	nt	Sodium-t-amylate / t-amyl alcohol		mixture	590	590	T	nt
2-Propenamide	Acrylamide	79-06-1	130	135	T	nt	Sodium arsenite		15120-17-9	340	340	nt	nt
2-Propenoic acid	Acrylic acid	79-10-7	100	102	T	nt	Sodium bicarbonate		144-55-8	340	340	nt	nt
Propionaldehyde		123-38-6	120	121	T	nt	Sodium bisulfite		7631-90-5	340	340	nt	nt
							Sodium carbonate		497-19-8	340	340	nt	nt

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Sodium chloride		7647-14-5	340	340	nt	nt	Tannic acid		1401-55-4	310	316	nt	nt
Sodium cyanide		143-33-9	345	345	T	nt	TDI	Toluene-1,3-diisocyanate	26471-62-5	210	212	T	nt
Sodium dichromate		10588-01-9	340	340	T	nt	Terephthalic acid methyl ester		120-61-6	220	226	nt	nt
Sodium fluoride		7681-49-4	340	340	T	nt	1,1,2,2-Tetrabromoethane		79-27-6	260	261	T	nt
Sodium hydrosulfide		16721-80-5	340	340	T	nt	2,2', 6,6'-Tetrachlorobisphenol A		79-95-8	260 / 310	263 / 316	T	nt
Sodium hydroxide		1310-73-2	380	380	T	T	1,1,1,2-Tetrachloroethane		630-20-6	260	261	nt	nt
Sodium hypochlorite		7681-52-9	340	340	T	nt	1,1,2,2-Tetrachloroethane		79-34-5	260	261	T	nt
Sodium methylate		124-41-4	550	550	T	nt	1,1,2,2-Tetrachloroethylene		127-18-4	260	264	T	T
Sodium persulfate		7775-27-1	340	340	nt	nt	Tetraethoxysilane		78-10-4	480	480	T	nt
Sodium phosphate		7601-54-9	340	340	nt	nt	Tetraethylene pentamine		112-57-2	140	148	nt	nt
Sodium sulfate		7757-82-6	340	340	nt	nt	Tetraethyl lead		78-00-2	470	470	T	nt
Sodium sulfide		1313-82-2	340	340	nt	nt	1,1,1,2-Tetrafluoroethane		811-97-2	260	261	T	nt
Sodium sulfite		7757-83-7	340	340	nt	nt	Tetrafluoroethylene		116-14-3	260	264	nt	nt
Soman (GD)		96-64-0	460 / 595	462 / 595	T	nt	Tetrafluoromethane		75-73-0	260	261	T	nt
Stearic acid		57-11-4	100	102	nt	nt	Tetrahydrofuran		109-99-9	240	241	T	T
Stoddard solvent		8052-41-3	290	291	T	nt	Tetralone		529-34-0	290	292	T	nt
Styrene		100-42-5	290	292	T	nt	N,N,N,N'-Tetramethyl-ethylenediamine		110-18-9	140	148	nt	nt
Sulfinyl chloride	Thionyl chloride	7719-09-7	360	360	T	nt	Tetramethyltin in n-pentane		Mixture	590	590	T	nt
Sulfonyl chloride	Sulfuryl chloride	7791-25-5	350 / 360	350 / 360	T	nt	1,1'-Thiobis (2-chloroethane)	Sulfur mustard	505-60-2	500 / 595	502 / 595	T	nt
Sulfur chloride	Sulfur dichloride	10545-99-0	500	502	T	nt	Thioglycolic acid		68-11-1	100 / 500	103 / 501	T	nt
Sulfur dichloride		10545-99-0	500	502	T	nt	Thionyl chloride		7719-09-7	360	360	T	nt
Sulfur dioxide		7446-09-5	350 / 365	350 / 365	T	nt	Thiophenol	Phenyl mercaptan	108-98-5	500	501	T	nt
Sulfur hexafluoride		2551-62-4	350 / 500	350 / 509	T	nt	Thiopropene	Dimethyl sulfide	75-18-3	500	502	T	nt
Sulfuric acid		7664-93-9	370	370	T	T	Thioxamyl	Oxamyl	23135-22-0	130	137	T	nt
Sulfuric acid, fuming	Oleum	8014-95-7	370	370	T	T	Titanium chloride	Titanium tetrachloride	7550-45-0	360	360	T	nt
Sulfur monochloride	Disulfur dichloride	10025-67-9	500	502	T	nt	Titanium dioxide		13463-67-7	380	380	nt	nt
Sulfur mustard (HD) chemical agent		505-60-2	500 / 595	502 / 595	T	nt	Titanium tetrachloride		7550-45-0	360	360	T	nt
Sulfurous acid		7782-99-2	370	370	nt	nt	TNT		118-96-7	440	442	nt	nt
Sulfurous anhydride	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T	nt	Toluene		108-88-3	290	292	T	T
Sulfurous chloride	Thionyl chloride	7719-09-7	360	360	T	nt	Toluene 80%, mixture			260	263	T	nt
Sulfurous oxide	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T	nt	Toluene-1,3-diisocyanate		26471-62-5	210	212	T	nt
Sulfurous oxychloride	Thionyl chloride	7719-09-7	360	360	T	nt							
Sulfur oxide	Sulfur dioxide	7446-09-5	350 / 365	350 / 365	T	nt							
Sulfur trioxide		7446-11-9	365	365	T	T							
Sulfuryl chloride		7791-25-5	350 / 360	350 / 360	T	nt							
Tabun		77-81-6	460 / 595	462 / 595	T	nt							

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Toluene-2,4-diisocyanate		584-84-9	210	212	T	nt	Tricresyl phosphate	Tritolyl phosphate	1330-78-5	460	462	T	nt
p-Toluenesulfonic acid monohydrate		6192-52-5	500	504	T	nt	Triethanolamine		102-71-6	140	143	nt	nt
o-Toluenethiol		137-06-4	500	501	nt	nt	Triethoxysilane		998-30-1	480	480	T	nt
m-Toluidine		108-44-1	140	145	T	nt	Triethyl aluminum		97-93-8	470	470	T	nt
o-Toluidine		95-53-4	140	145	T	nt	Triethylamine		121-44-8	140	143	T	nt
Tolyl glycidyl ether		26447-14-3	270	275	nt	nt	Triethylenetetramine		112-24-3	140	149	nt	nt
2-Tolyl mercaptan		137-06-4	500	501	nt	nt	Trifluoroacetic acid		76-05-1	100	103	T	nt
Triallylamine		102-70-5	140	143	nt	nt	Trifluoroacetyl chloride		354-32-5	110	111	T	nt
Tribromomethane		75-25-2	260	261	nt	nt	2,2,2-Trifluoroethanol		75-89-8	310	315	T	nt
Tribromophenol		118-79-6	310	316	T	nt	Trifluoromethane		75-46-7	260	261	T	nt
Tributylamine		102-82-9	140	143	nt	nt	Trifluoromethane sulfonic acid		1493-13-6	500	504	T	nt
Tributyltin oxide		56-35-9	470	470	nt	nt	Trimethylamine gas		75-50-3	140	143	T	nt
Trichloroacetaldehyde		75-87-6	120	121	nt	nt	1,2,4-Trimethylbenzene		95-63-6	290	292	nt	nt
Trichloroacetic acid		76-03-9	100	103	T	nt	1,2,3-Trimethylbenzene		526-73-8	290	292	T	nt
1,1,1-Trichloroacetone	Trichloroacetic acid	76-03-9	100	103	T	nt	Trimethylcyclohexane		98-55-5	290	291	nt	nt
1,1,3-Trichloroacetone		921-03-9	260 / 390	261 / 391	T	nt	3,5,5-Trimethyl cyclohexanol		116-02-9	310	312	nt	nt
Trichloroacetoneitrile		545-06-2	430	431	nt	nt	2,2,4-Trimethylpentane		540-84-1	140	142	nt	nt
1,2,4-Trichlorobenzene		120-82-1	260	263	T	nt	Trimethyl phosphate		512-56-1	460	462	T	nt
1,1,1-Trichloroethane		71-55-6	260	261	T	nt	Trimethyl phosphite		121-45-9	460	462	T	nt
1,1,2-Trichloroethane		79-00-5	260	261	T	nt	2,4,6-Trinitrophenol		88-89-1	310 / 440	316 / 440	nt	nt
2,2,2-Trichloroethanol		115-20-8	310	315	T	nt	2,4,6-Trinitrotoluene		118-96-7	440	442	nt	nt
Trichloroethylene		79-01-6	260	264	T	T	Triocetyl phosphate		25103-12-2	460	462	nt	nt
Trichlorofluoromethane		75-69-4	260	261	nt	nt	Triphenyl phosphite		101-02-0	460	462	T	nt
Trichloroisocyanuric acid		87-90-1	270	274	nt	nt	Trippropylamine		102-69-2	140	146	nt	nt
Trichloromethane	Chloroform	67-66-3	260	261	T	T	Tritolyl phosphate		1330-78-5	460	462	T	nt
Trichloromethanethiol		75-70-7	500	501	nt	nt	Tungsten hexafluoride		7783-82-6	350	350	T	nt
Trichloromethyl benzene	Benzotrichloride	98-07-7	260	263	T	nt	Turpentine		8006-64-2	290	294	T	nt
Trichloromethyl silane	Methyl trichlorosilane	75-79-6	480	480	T	nt	Vinyl acetate		108-05-4	220	222	T	nt
Trichlorophenylsilane		98-13-5	480	480	T	nt	Vinylbenzene	Styrene	100-42-5	290	292	T	nt
1,2,3-Trichloropropane		96-18-4	260	261	nt	nt	Vinyl bromide		593-60-2	260	264	T	nt
1,1,3-Trichloro-2-propanone	1,1,3-Trichloroacetone	921-03-9	260	261	T	nt	Vinyl chloride		75-01-4	260	264	T	nt
Trichlorosilane		10025-78-2	480	480	T	nt	4-Vinyl-1-cyclohexene		100-40-3	290	294	nt	nt
1,1,2-Trichloro-1,2,2-trifluoroethane		76-13-1	260	261	T	nt	Vinyl fluoride		75-02-5	260	264	nt	nt
Trichlorovinylsilane		75-94-5	480	480	T	nt	Vinylidene chloride		75-35-4	260	264	T	nt
Triclene	Trichloroethylene	79-01-6	260	264	T	T	Vinylmagnesium chloride		3536-96-7	470	470	T	nt
							4-Vinyl pyridine		100-43-6	270	271	T	nt

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N-Vinylpyrrolidone		88-12-0	130	132	nt	nt	Wood ether	Dimethyl ether	115-10-6	240	241	T	nt
Vinyl trichlorosilane	Trichlorovinylsilane	75-94-5	480	480	T	nt	o-Xylene		95-47-6	290	292	T	nt
VM and P naphtha		8032-32-4	290	291	T	nt	Xylene, mixed isomers		1330-20-7	290	292	T	nt
VX Nerve Agent		50782-69-9	460 / 595	462 / 595	T	nt	Xylenol		1300-71-6	310	316	nt	nt
Vydate	Oxamyl	23135-22-0	130	137	T	nt	Xylidine		1300-73-8	140	145	nt	nt
Water		7732-18-5	590	590	nt	nt	Yperite	Sulfur mustard	505-60-2	500 / 595	502 / 595	T	nt
White liquor		68131-33-9	590	590	T	nt	Zinc chromate		13530-65-9	340	340	nt	nt
Wood alcohol	Methanol	67-56-1	310	311	T	T	Zinc cyanide		557-21-1	345	345	nt	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	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
50-00-0	Formaldehyde	120	121	T	nt	67-63-0	Isopropanol	310	312	T	nt
50-21-5	Lactic acid	100	103	nt	nt	67-64-1	Acetone	390	391	T	T
50-32-8	Benzo[a]pyrene	290	292 / 293	T	nt	67-66-3	Chloroform	260	261	T	T
51-79-6	Ethyl carbamate	230	233	nt	nt	67-68-5	Dimethyl sulfoxide	500	503	T	nt
54-11-5	Nicotine	270	271	T	nt	67-72-1	Carbon hexachloride	260	261	nt	nt
55-63-0	Nitroglycerine	440	442	nt	nt	68-11-1	Thioglycolic acid	100 / 500	103 / 501	T	nt
56-23-5	Carbon tetrachloride	260	261	T	nt	68-12-2	N,N-Dimethylformamide	130	132	T	T
56-35-9	Bis(tributyltin)oxide	470	470	nt	nt	71-23-8	n-Propanol	310	311	T	nt
56-38-2	Ethyl parathion	460	462	T	nt	71-36-3	n-Butanol	310	311	T	nt
56-55-3	1,2-Benzanthracene	290	293	nt	nt	71-41-0	n-Pentanol	310	311	nt	nt
56-81-5	Glycerine	310	314	T	nt	71-43-2	Benzene	290	292	T	nt
57-10-3	Palmitic acid	100	102	nt	nt	71-55-6	1,1,1-Trichloroethane	260	261	T	nt
57-11-4	Stearic acid	100	102	nt	nt	74-82-8	Methane	290	291	T	nt
57-14-7	1,1-Dimethylhydrazine	280	280	T	nt	74-83-9	Methyl bromide	260	261	T	nt
57-55-6	Propylene glycol	310	314	T	nt	74-85-1	Ethylene	290	294	T	nt
57-74-9	Chlordane	260	261	T	nt	74-87-3	Methyl chloride	260	261	T	nt
58-89-9	Lindane	260	261	T	nt	74-88-4	Methyl iodide	260	261	T	T
59-50-7	4-Chloro-m-cresol	260 / 310	263 / 316	nt	nt	74-89-5	Methylamine	140	141	T	nt
60-12-8	Phenethyl alcohol	310	318	T	nt	74-90-8	Hydrogen cyanide gas	345 / 350	345 / 350	T	T
60-29-7	Ethyl ether	240	241	T	nt	74-90-8	Hydrogen cyanide liquid	345 / 370	345 / 370	T	T
60-33-3	Linoleic acid	100	102	nt	nt	74-93-1	Methyl mercaptan	500	501	T	nt
60-34-4	Methylhydrazine	280	280	T	nt	74-95-3	Methylene bromide	260	261	nt	nt
60-35-5	Acetamide	130	132	nt	nt	74-97-5	Bromochloromethane	260	261	T	nt
62-50-0	Ethyl methanesulfonate	500	507	nt	nt	74-98-6	Propane	290	291	T	nt
62-53-3	Aniline	140	145	T	nt	75-00-3	Ethyl chloride	260	261	T	nt
62-75-9	Dimethyl nitrosamine	450	450	T	nt	75-01-4	Vinyl chloride	260	264	T	nt
64-17-5	Ethanol	310	311	T	nt	75-02-5	Vinyl fluoride	260	264	nt	nt
64-18-6	Formic acid	100	102	T	T	75-03-6	Ethyl iodide	260	261	nt	nt
64-19-7	Acetic acid	100	102	T	T	75-04-7	Ethylamine	140	141	T	nt
64-67-5	Diethyl sulfate	500	507	T	nt	75-05-8	Acetonitrile	430	431	T	T
66-25-1	1-Hexanal	120	121	nt	nt	75-07-0	Acetaldehyde	120	121	T	nt
67-56-1	Methanol	310	311	T	T	75-08-1	Ethyl mercaptan	500	501	nt	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
75-09-2	Dichloromethane	260	261	T	T	76-06-2	Chloropicrin	260	261	T	nt
75-12-7	Formamide	130	132	nt	nt	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	260	261	T	nt
75-15-0	Carbon disulfide	500	502	T	T	76-16-4	Hexafluoroethane	260	261	T	nt
75-18-3	Dimethyl sulfide	500	502	T	nt	77-47-4	Hexachloro cyclopentadiene	260	264	T	nt
75-21-8	Ethylene oxide	270	275	T	nt	77-78-1	Dimethyl sulfate	500	507	T	T
75-25-2	Tribromomethane	260	261	nt	nt	77-81-6	Tabun	460 / 595	462 / 595	T	nt
75-28-5	Isobutane	290	291	T	nt	77-92-9	Citric acid	100	104	nt	nt
75-29-6	Isopropyl chloride	260	261	nt	nt	78-00-2	Tetraethyl lead	470	470	T	nt
75-31-0	Isopropylamine	140	141	T	nt	78-10-4	Tetraethoxysilane	480	480	T	nt
75-34-3	1,1-Dichloroethane	260	261	nt	nt	78-59-1	Isophorone	390	391	nt	nt
75-35-4	Vinylidene chloride	260	264	T	nt	78-78-4	Isopentane	290	291	nt	nt
75-36-5	Acetyl chloride	110	111	T	nt	78-79-5	Isoprene	290	296	T	nt
75-44-5	Phosgene	350	350	T	T	78-81-9	Isobutylamine	140	141	nt	nt
75-46-7	Trifluoromethane	260	261	T	nt	78-83-1	Isobutanol	310	311	T	nt
75-50-3	Trimethylamine gas	140	143	T	nt	78-84-2	Isobutyraldehyde	120	121	nt	nt
75-52-5	Nitromethane	440	441	T	nt	78-87-5	Propylene dichloride	260	261	T	nt
75-55-8	Propyleneimine	270	274	nt	nt	78-88-6	2,3-Dichloropropene	260	261	T	nt
75-56-9	1,2-Propylene oxide	270	275	T	nt	78-90-0	Propylene diamine	140	148	nt	nt
75-64-9	tert-Butylamine	140	141	T	nt	78-92-2	sec-Butyl alcohol	310	312	nt	nt
75-65-0	tert-Butyl alcohol	310	313	T	nt	78-93-3	Methyl ethyl ketone	390	391	T	nt
75-66-1	t-Butyl mercaptan	500	501	nt	nt	78-95-5	Chloroacetone	390	391	T	nt
75-66-1	2-Methyl-2-propanethiol	500	501	nt	nt	79-00-5	1,1,2-Trichloroethane	260	261	T	nt
75-69-4	Trichlorofluoromethane	260	261	nt	nt	79-01-6	Trichloroethylene	260	264	T	T
75-70-7	Trichloromethanethiol	500	501	nt	nt	79-03-8	Propanoyl chloride	110	111	nt	nt
75-73-0	Tetrafluoromethane	260	261	T	nt	79-04-9	Chloroacetyl chloride	110	111	T	nt
75-75-2	Methanesulfonic acid	500	504	T	nt	79-06-1	Acrylamide	130	135	T	nt
75-78-5	Dimethyldichlorosilane	480	480	T	nt	79-09-4	Propionic acid	100	102	T	nt
75-79-6	Methyl trichlorosilane	480	480	T	nt	79-10-7	Acrylic acid	100	102	T	T
75-86-5	Acetone cyanohydrin	310 / 430	313 / 431	T	T	79-11-8	Chloroacetic acid	100	103	T	nt
75-87-6	Trichloroacetaldehyde	120	121	nt	nt	79-14-1	Glycolic acid	100	103	T	nt
75-89-8	2,2,2-Trifluoroethanol	310	315	T	nt	79-20-9	Methyl acetate	220	222	nt	nt
75-93-4	Methyl sulfate	500	507	nt	nt	79-21-0	Peroxyacetic acid	300	300	nt	nt
75-94-5	Trichlorovinylsilane	480	480	T	nt	79-22-1	Methyl chloroformate	110	113	T	nt
76-01-7	Pentachloroethane	260	261	nt	nt	79-24-3	Nitroethane	440	441	nt	nt
76-03-9	Trichloroacetic acid	100	103	T	nt	79-27-6	1,1,2,2-Tetrabromoethane	260	261	T	nt
76-05-1	Trifluoroacetic acid	100	103	T	nt	79-34-5	1,1,2,2-Tetrachloroethane	260	261	T	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
79-36-7	Dichloroacetyl chloride	110	111	T	nt	95-50-1	1,2-Dichlorobenzene	260	263	nt	nt
79-39-0	Methacrylamide	130	135	nt	nt	95-51-2	o-Chloroaniline	140	145	nt	nt
79-41-4	Methacrylic acid	100	102	T	nt	95-53-4	o-Toluidine	140	145	T	nt
79-43-6	Dichloroacetic acid	100	103	nt	nt	95-57-8	o-Chlorophenol	260 / 310	263 / 316	nt	nt
79-46-9	2-Nitropropane	440	441	T	nt	95-63-6	1,2,4-Trimethylbenzene	290	292	nt	nt
79-95-8	2,2', 6,6'-Tetrachlorobisphenol A	260 / 310	263 / 316	T	nt	95-76-1	3,4-Dichloroaniline	140 / 260	145 / 263	T	nt
80-05-7	4,4'-Isopropylidene diphenol	310	316	nt	nt	96-12-8	1,2-Dibromo-3-chloropropane	260	261	T	nt
80-43-3	Cumene peroxide	300	300	nt	nt	96-18-4	1,2,3-Trichloropropane	260	261	nt	nt
80-62-6	Methyl methacrylate	220	223	T	nt	96-29-7	Methyl ethyl ketoxime	590	590	T	nt
84-66-2	Diethyl phthalate	220	226	nt	nt	96-33-3	Methyl acrylate	220	223	T	nt
84-69-5	Diisobutyl phthalate	220	226	nt	nt	96-34-4	Methyl chloroacetate	220	222	nt	nt
84-74-2	n-Butyl phthalate	220	226	nt	nt	96-48-0	gamma-Butyrolactone	220	225	T	nt
85-01-8	Phenanthrene	290	293	nt	nt	96-64-0	Soman (GD) Chemical Agent	460 / 595	462 / 595	T	nt
85-68-7	Butyl benzyl phthalate	220	226	nt	nt	97-63-2	Ethyl methacrylate	220	223	T	nt
86-73-7	Fluorene	290	293	nt	nt	97-93-8	Triethyl aluminum	470	470	T	nt
87-68-3	Hexachlorobutadiene	260	264	T	nt	98-00-0	2-Furyl methanol	310	318	nt	nt
87-86-5	Pentachlorophenol	310	316	T	nt	98-01-1	2-Furaldehyde	120 / 270	122 / 277	T	T
87-90-1	Trichloroisocyanuric acid	270	274	nt	nt	98-07-7	Benzotrichloride	260	263	T	nt
88-12-0	N-Vinylpyrrolidone	130	132	nt	nt	98-09-9	Benzene sulfonyl chloride	500	505	T	nt
88-72-2	o-Nitrotoluene	440	442	T	nt	98-13-5	Trichlorophenylsilane	480	480	T	nt
88-73-3	o-Nitrochlorobenzene	260 / 440	263 / 442	T	nt	98-29-3	4-tert-Butyl catechol	310	316	T	nt
88-75-5	2-Nitrophenol	310 / 440	316 / 442	T	nt	98-54-4	p-tert-Butylphenol	310	316	nt	nt
88-89-1	2,4,6-Trinitrophenol	310 / 440	316 / 440	nt	nt	98-55-5	Trimethylcyclohexane	290	291	nt	nt
89-72-5	o-sec-Butylphenol	310	316	nt	nt	98-56-6	4-Chlorobenzotrifluoride	260	263	T	nt
90-00-6	Ethylphenol	310	316	nt	nt	98-82-8	Cumene	290	292	T	nt
91-17-8	Decahydronaphthalene	290	291	nt	nt	98-85-1	a-Phenylethyl alcohol	310	318	T	nt
91-20-3	Naphthalene	290	293	T	nt	98-86-2	Acetophenone	390	392	T	nt
91-22-5	Quinoline	270	274	nt	nt	98-88-4	Benzoyl chloride	110	112	T	nt
91-66-7	Diethylaniline crude	140	146	T	nt	98-95-3	Nitrobenzene	440	441	T	T
91-67-8	Diethyl-m-toluidine crude	140	145	T	nt	99-08-1	m-Nitrotoluene	440	442	nt	nt
91-94-1	3,3'-Dichlorobenzidine	140 / 260	149 / 263	nt	nt	99-99-0	p-Nitrotoluene	440	442	T	nt
92-87-5	Benzidine	140	145 / 149	T	nt	100-00-5	p-Nitrochlorobenzene	260 / 440	263 / 442	T	nt
93-89-0	Ethyl benzoate	220	226	nt	nt	100-07-2	Anisoyl chloride	110 / 240	112 / 243	nt	nt
95-47-6	o-Xylene	290	292	T	nt	100-37-8	N,N-Diethylethanolamine	140	143	nt	nt
95-48-7	o-Cresol	310	316	T	nt	100-39-0	Benzyl bromide	260	266	nt	nt
95-49-8	o-Chlorotoluene	260	263	T	nt	100-40-3	4-Vinyl-1-cyclohexene	290	294	nt	nt



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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
100-41-4	Ethyl benzene	290	290	T	nt	106-95-6	Allyl bromide	260	265	nt	nt
100-42-5	Styrene	290	292	T	nt	106-97-8	n-Butane	290	291	nt	nt
100-43-6	4-Vinyl pyridine	270	271	T	nt	106-98-9	Butene	290	294	nt	nt
100-44-7	Benzyl chloride	260	266	T	nt	106-99-0	1,3-Butadiene	290	296	T	nt
100-47-0	Benzonitrile	430	432	T	nt	107-02-8	Acrolein	120	121	T	nt
100-51-6	Benzyl alcohol	310	312	T	nt	107-05-1	Allyl chloride	260	265	T	nt
100-52-7	Benzaldehyde	120	122	T	nt	107-06-2	1,2-Dichloroethane	260	261	T	nt
100-61-8	N-Methylaniline	140	146	nt	nt	107-07-3	2-Chloroethanol	260 / 310	261 / 315	T	nt
100-63-0	Phenyl hydrazine	280	280	nt	nt	107-10-8	n-Propylamine	140	141	T	nt
100-97-0	Hexamethylenetriamine	270	274	nt	nt	107-11-9	Allylamine	140	141	nt	nt
101-02-0	Triphenyl phosphite	460	462	T	nt	107-12-0	Ethyl cyanide	345	345	nt	nt
101-14-4	4,4'-Methylene bis (o-chloroaniline)	140	149	T	nt	107-13-1	Acrylonitrile	430	431	T	T
101-68-8	4,4'-Diphenyl methane diisocyanate	210	212	T	nt	107-14-2	Chloroacetonitrile	260 / 430	261 / 431	nt	nt
101-77-9	4,4'-Methylene dianiline	140	145 / 149	T	nt	107-15-3	Ethylenediamine	140	148	T	nt
101-80-4	4,4'-Oxydianiline	140	149	nt	nt	107-18-6	Allyl alcohol	310	311	T	T
102-69-2	Tripropylamine	140	146	nt	nt	107-20-0	2-Chloroacetaldehyde	120 / 260	121 / 261	nt	nt
102-70-5	Triallylamine	140	143	nt	nt	107-21-1	Ethylene glycol	310	314	T	nt
102-71-6	Triethanolamine	140	143	nt	nt	107-30-2	Chloromethyl methyl ether	240	241	T	nt
102-82-9	Tributylamine	140	143	nt	nt	107-31-3	Methyl formate	220	221	T	nt
103-11-7	2-Ethylhexyl acrylate	220	223	nt	nt	107-44-8	Sarin	460 / 595	462 / 595	T	nt
103-71-9	Phenyl isocyanate	210	212	T	nt	107-88-0	1,3-Butylene glycol	310	314	nt	nt
104-49-4	Paraphenylene diisocyanate	210	212	T	nt	107-92-6	n-Butyric acid	100	102	T	nt
104-75-6	2-Ethylhexylamine	140	141	nt	nt	107-98-2	1-Methoxy-2-propanol	240	245	nt	nt
104-76-7	2-Ethylhexanol	310	311	nt	nt	108-01-0	2-Dimethyl aminoethanol	140	143	nt	nt
104-90-5	Methyl ethyl pyridine	270	271	nt	nt	108-03-2	1-Nitropropane	440	441	nt	nt
105-58-8	Diethyl carbonate	230	233	nt	nt	108-05-4	Vinyl acetate	220	222	T	nt
105-67-9	2,4-Dimethylphenol	310	316	nt	nt	108-09-8	1,3-Dimethyl butylamine	140	143	nt	nt
106-20-7	2,2'-Diethyldihexylamine	140	142	nt	nt	108-10-1	Methyl isobutyl ketone	390	391	T	nt
106-47-8	p-Chloroaniline	140	145	T	nt	108-11-2	Methyl isobutyl carbinol	310	312	nt	nt
106-48-9	4-Chlorophenol	260 / 310	263 / 316	T	nt	108-18-9	Diisopropylamine	140	142	nt	nt
106-63-8	Isobutyl acrylate	220	223	nt	nt	108-20-3	Isopropyl ether	240	241	nt	nt
106-88-7	1,2-Butylene oxide	270	275	T	nt	108-21-4	Isopropyl acetate	220	222	nt	nt
106-89-8	Epichlorohydrin	260 / 270	261 / 275	T	T	108-24-7	Acetic anhydride	160	161	T	nt
106-92-3	Allyl glycidyl ether	270	275	nt	nt	108-31-6	Maleic anhydride	160	161	T	nt
106-93-4	Ethylene dibromide	260	261	T	nt	108-39-4	m-Cresol	310	316	nt	nt
106-94-5	1-Bromo propane	310	315	nt	nt	108-43-0	3-Chlorophenol	260 / 310	263 / 316	nt	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
108-44-1	m-Toluidine	140	145	T	nt	110-57-6	trans-1,4-Dichloro-2-butene	260	264	T	nt
108-45-2	m-Phenylenediamine	140	149	nt	nt	110-63-4	1,4-Butanediol	310	314	T	nt
108-46-3	1,3-Benzenediol	310	316	nt	nt	110-75-8	2-Chloroethyl vinyl ether	240 / 260	241 / 261	nt	nt
108-60-1	Dichloroisopropyl ether	240 / 260	241 / 261	nt	nt	110-80-5	Ethyl Cellosolve®	240	245	T	nt
108-77-0	Cyanuric chloride	260 / 270	263 / 274	T	nt	110-82-7	Cyclohexane	290	291	T	nt
108-83-8	Diisobutyl ketone	390	391	nt	nt	110-85-0	1,4-Diethylenediamine	270	274	nt	nt
108-86-1	Phenyl bromide	260	263	nt	nt	110-86-1	Pyridine	270	271	T	nt
108-88-3	Toluene	290	292	T	T	110-89-4	Piperidine	270	274	nt	nt
108-90-7	Chlorobenzene	260	263	T	nt	110-91-8	Morpholine	140	142	T	nt
108-91-8	Cyclohexylamine	140	141	T	nt	111-15-9	Ethyl Cellosolve® acetate	240	245	T	nt
108-93-0	Cyclohexanol	310	312	nt	nt	111-27-3	Hexyl alcohol	310	311	nt	nt
108-94-1	Cyclohexanone	390	391	T	nt	111-30-8	Glutaraldehyde	120	121	T	nt
108-95-2	Phenol	310	316	T	T	111-40-0	Diethylenetriamine	140	148	T	nt
108-98-5	Phenyl mercaptan	500	501	T	nt	111-42-2	Diethanolamine	140	142	T	nt
108-99-6	3-Picoline	270	271	T	nt	111-44-4	Dichloroethyl ether	240 / 260	241 / 261	T	nt
109-06-8	2-Picoline	270	271	T	nt	111-46-6	Diethylene glycol	310	314	nt	nt
109-55-7	3-Dimethyl aminopropylamine	140	148	nt	nt	111-55-7	Ethylene glycol diacetate	220	222	nt	nt
109-60-4	Propyl acetate	220	222	nt	nt	111-65-9	n-Octane	290	291	T	nt
109-63-7	Boron trifluoride etherate	590	590	T	nt	111-69-3	Adiponitrile	430	431	T	nt
109-69-3	n-Butyl chloride	260	261	nt	nt	111-76-2	Butyl Cellosolve®	240	245	T	nt
109-73-9	n-Butylamine	140	141	T	nt	111-77-3	Diethylene glycol monomethyl ether	240	245	nt	nt
109-79-5	n-Butyl mercaptan	500	501	nt	nt	111-86-4	n-Octylamine	140	141	nt	nt
109-83-1	N-Methylethanolamine	140	142	nt	nt	111-87-5	n-Octanol	310	311	nt	nt
109-86-4	Methyl Cellosolve®	240	245	T	nt	111-90-0	Ethylene diglycol monoethyl ether	240	245	T	nt
109-89-7	Diethylamine	140	142	T	T	111-92-2	Di-n-butylamine	140	142	nt	nt
109-92-2	Ethyl vinyl ether	240 / 260	246 / 261	T	nt	112-07-2	Butyl Cellosolve® acetate	240	245	nt	nt
109-97-7	Pyrrole	270	274	nt	nt	112-20-9	Nonylamine	140	141	T	nt
109-99-9	Tetrahydrofuran	240	241	T	T	112-24-3	Triethylenetetramine	140	149	nt	nt
110-00-9	Furan	270	277	nt	nt	112-31-2	n-Decyl aldehyde	120	121	nt	nt
110-16-7	Maleic acid	100	104	T	nt	112-34-5	n-Butyl Carbitol®	240	245	nt	nt
110-18-9	N,N,N,N'-Tetramethyl ethylenediamine	140	148	nt	nt	112-35-6	Methyltriglycol	240	245	nt	nt
110-49-6	Methyl Cellosolve® acetate	240	245	T	nt	112-52-7	Chlorododecane	260	261	nt	nt
110-51-0	Borane pyridine complex	590	590	T	T	112-57-2	Tetraethylene pentamine	140	148	nt	nt
110-52-1	1,4-Dibromobutane	260	261	nt	nt	112-80-1	Oleic acid	100	102	nt	nt
110-54-3	n-Hexane	290	291	T	T	115-10-6	Dimethyl ether	240	241	T	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
115-20-8	2,2,2-Trichloroethanol	310	315	T	nt	124-18-5	Decane	290	291	nt	nt
116-02-9	3,5,5-Trimethyl cyclohexanol	310	312	nt	nt	124-40-3	Dimethylamine	140	142	T	nt
116-14-3	Tetrafluoroethylene	260	264	nt	nt	124-41-4	Sodium methylate	550	550	T	nt
117-81-7	Di (2-ethylhexyl) phthalate	220	226	T	nt	126-98-7	Methacrylonitrile	430	431	nt	nt
117-84-0	Di-n-octyl phthalate	220	226	nt	nt	126-99-8	2-Chloro-1,3-butadiene	260	264	T	nt
118-74-1	Hexachlorobenzene	260	263	nt	nt	127-00-4	1-Chloro-2-propanol	260 / 310	261 / 315	nt	nt
118-79-6	Tribromophenol	310	316	T	nt	127-08-2	Potassium acetate	340	340	T	nt
118-96-7	2,4,6-Trinitrotoluene	440	442	nt	nt	127-18-4	1,1,2,2-Tetrachloroethylene	260	264	T	T
119-36-8	Methyl salicylate	220	226	T	nt	127-19-5	N,N-Dimethylacetamide	130	132	T	nt
120-12-7	Anthracene	290	293	T	nt	129-00-0	Benzophenanthrene	290	293	nt	nt
120-51-4	Benzyl benzoate	220	226	nt	nt	131-11-3	Dimethyl phthalate	220	226	nt	nt
120-61-6	Dimethyl terephthalate	220	226	nt	nt	134-32-7	Naphthylamine	140	145	nt	nt
120-82-1	1,2,4-Trichlorobenzene	260	263	T	nt	136-60-7	n-Butyl benzoate	220	226	nt	nt
120-83-2	2,4-Dichlorophenol	260 / 310	263 / 316	nt	nt	137-06-4	2-Tolyl mercaptan	500	501	nt	nt
121-44-8	Triethylamine	140	143	T	nt	138-86-3	Dipentene	290	296	nt	nt
121-45-9	Trimethyl phosphite	460	462	T	nt	140-11-4	Benzyl acetate	220	222	nt	nt
121-69-7	N,N-Dimethylaniline	140	146	T	nt	140-88-5	Ethyl acrylate	220	223	T	nt
121-75-5	Malathion	460	462	T	nt	141-32-2	n-Butyl acrylate	220	223	T	nt
122-39-4	Diphenylamine	140	146	nt	nt	141-43-5	Ethanolamine	140 / 310	141 / 311	T	nt
122-60-1	Phenyl glycidyl ether	270	275	T	nt	141-78-6	Ethyl acetate	220	222	T	T
122-66-7	Hydrazobenzene	280	280	nt	nt	141-79-7	Mesityl oxide	390	391	T	nt
123-05-7	Ethyl hexaldehyde	120	121	nt	nt	141-91-3	Dimethylmorpholine	140	142	nt	nt
123-31-9	Hydroquinone	310	316	nt	nt	141-97-9	Ethyl acetoacetate	220	222	nt	nt
123-38-6	Propionaldehyde	120	121	T	nt	142-82-5	n-Heptane	290	291	T	nt
123-51-3	Isoamyl alcohol	310	312	T	nt	142-84-7	n-Dipropylamine	140	142	nt	nt
123-62-6	Propionic anhydride	160	161	nt	nt	142-96-1	n-Butyl ether	240	241	T	nt
123-63-7	Paraldehyde	120	121	nt	nt	143-07-7	Lauric acid	100	102	nt	nt
123-72-8	n-Butyraldehyde	120	121	T	nt	143-33-9	Sodium cyanide	345	345	T	nt
123-73-9	trans-Crotonaldehyde	120	121	nt	nt	144-55-8	Sodium bicarbonate	340	340	nt	nt
123-75-1	Pyrolidine	270	274	T	nt	144-62-7	Oxalic acid	100	104	T	nt
123-86-4	n-Butyl acetate	220	222	T	nt	149-57-5	2-Ethylhexanoic acid	100	102	nt	nt
123-91-1	1,4-Dioxane	270	278	T	nt	151-50-8	Potassium cyanide	345	345	T	nt
124-02-7	Diallylamine	140	142	nt	nt	151-56-4	Ethyleneimine	270	274	T	nt
124-04-9	Adipic acid	100	104	nt	nt	151-67-7	Halothane	260	261	nt	nt
124-07-2	Octanoic acid	100	102	T	nt	156-60-5	trans-1,2-dichloroethylene	260	261	T	nt
124-09-4	Hexamethylene diamine	140	148	T	nt	218-01-9	1,2-Benzophenanthrene	290	293	nt	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
260-94-6	Acridine	290	293	nt	nt	541-25-3	Lewisite (L) Chemical Agent	470 / 595	470 / 595	T	nt
287-92-3	Cyclopentane	290	291	nt	nt	542-56-3	Isobutyl nitrite	430	431	nt	nt
298-00-0	Methyl parathion	460	462	T	nt	542-59-6	Ethylene glycol monoacetate	220	222	nt	nt
302-01-2	Hydrazine	280	280	T	nt	542-62-1	Barium cyanide	345	345	nt	nt
333-41-5	Diazinon	460	462	T	nt	542-75-6	1,3-Dichloropropene	260	261	T	nt
354-32-5	Trifluoroacetyl chloride	110	111	T	nt	542-76-7	3-Chloropropionitrile	260 / 430	261 / 431	nt	nt
372-09-8	Cyanoacetic acid	100	103	nt	nt	542-88-1	Bis(chloromethyl) ether	240 / 260	241 / 261	nt	nt
374-07-2	1,1-Dichloro tetrafluoroethane	260	261	T	nt	544-92-3	Cuprous cyanide	345	345	nt	nt
382-10-5	Hexafluoroisobutylene	260	261	T	nt	545-06-2	Trichloroacetonitrile	430	431	nt	nt
420-04-2	Cyanamide	345	345	nt	nt	557-19-7	Nickel cyanide	345	345	nt	nt
459-72-3	Ethyl fluoroacetate	220	222	nt	nt	557-21-1	Zinc cyanide	345	345	nt	nt
460-00-4	4-Bromofluorobenzene	260	263	T	nt	558-13-4	Carbon tetrabromide	260	261	nt	nt
460-19-5	Cyanogen	345	345	nt	nt	563-47-3	3-Chloro-2-methylpropene	260	265	nt	nt
462-06-6	Fluorobenzene	260	263	T	nt	583-52-8	Potassium oxalate	340	340	nt	nt
462-94-2	1,5-Pentanediamine	140	148	nt	nt	584-08-7	Potassium carbonate	340	340	T	nt
497-19-8	Sodium carbonate	340	340	nt	nt	584-84-9	Toluene-2,4-diisocyanate	210	212	T	nt
501-53-1	Benzyl chloroformate	110	113	T	nt	590-17-0	Bromoacetonitrile	430	431	nt	nt
504-29-0	2-Aminopyridine	270	271	T	nt	590-86-3	Isovaleraldehyde	120	121	nt	nt
504-60-9	1,3-Pentadiene	290	296	nt	nt	591-78-6	Methyl n-butyl ketone	390	391	nt	nt
505-60-2	Sulfur mustard (HD) chemical agent	500 / 595	502 / 595	T	nt	592-01-8	Calcium cyanide	345	345	nt	nt
506-68-3	Cyanogen bromide	345 / 350	345 / 350	nt	T	592-04-1	Mercuric cyanide	345	345	nt	nt
506-77-4	Chlorine cyanide	345	345	nt	nt	592-27-8	Isooctane	290	291	nt	nt
506-96-7	Acetyl bromide	110	111	T	nt	592-41-6	1-Hexene	290	294	T	nt
512-56-1	Trimethyl phosphate	460	462	T	nt	593-53-3	Methyl fluoride	260	261	T	nt
513-37-1	Dimethylvinyl chloride	260	264	nt	nt	593-60-2	Vinyl bromide	260	264	T	nt
526-73-8	1,2,3-Trimethylbenzene	290	292	T	nt	611-14-3	2-Ethyltoluene	290	292	nt	nt
529-34-0	Tetralone	290	292	T	nt	617-79-8	2-Ethylbutylamine	140	141	nt	nt
532-27-4	Chloroacetophenone	260 / 390	261 / 392	T	nt	624-48-6	Dimethyl maleate	220	224	T	nt
534-07-6	1,3-Dichloroacetone	260 / 390	261 / 391	T	nt	624-83-9	Methyl isocyanate	210	211	T	nt
534-52-1	Dinitro-o-cresol	310 / 440	316 / 442	T	nt	624-92-0	Dimethyl disulfide	500	502	T	nt
538-93-2	Isobutylbenzene	290	292	T	nt	627-18-9	3-Bromo-1-propanol	260 / 310	261 / 315	nt	nt
540-51-2	2-Bromoethanol	260 / 310	261 / 315	nt	nt	627-30-5	3-Chloro-1-propanol	260 / 310	261 / 315	nt	nt
540-54-5	1-Chloropropane	260	261	nt	nt	628-63-7	n-Amyl acetate	220	222	T	nt
540-59-0	1,2-Dichloroethylene	260	264	nt	T	630-08-0	Carbon monoxide	350	350	T	nt
540-84-1	2,2,4-Trimethylpentane	140	142	nt	nt	630-20-6	1,1,1,2-Tetrachloroethane	260	261	nt	nt

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CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
631-61-8	Ammonium acetate	340	340	nt	nt	1338-23-4	2-Butanone peroxide	300	300	nt	nt
640-19-7	Fluoroacetamide	130	132	nt	nt	1401-55-4	Tannic acid	310	316	nt	nt
646-06-0	1,3-Dioxolane	240	241	nt	nt	1493-13-6	Trifluoromethane sulfonic acid	500	504	T	nt
692-42-2	Diethyl arsine	470	470	nt	nt	1552-12-1	Cyclooctadiene	290	296	T	nt
764-41-0	1,4-Dichloro-2-butene	260	264	T	nt	1615-80-1	Diethylhydrazine	280	280	nt	nt
765-34-4	Glycidaldehyde	270	275	nt	nt	1633-83-6	1,4-Butanesultone	500	503	nt	nt
777-77-7	Methylacrylic acid	300	300	nt	nt	1634-04-4	Methyl t-butyl ether	240	241	T	nt
811-97-2	1,1,1,2-Tetrafluoroethane	260	261	T	nt	1675-54-3	Bisphenol-A diglycidyl ether	270	275	T	nt
818-61-1	Hydroxyethyl acrylate	220	223	T	nt	1746-01-6	Dioxin	260	263	nt	nt
822-06-0	Hexamethylene diisocyanate	210	211	T	nt	1888-71-7	Hexachloropropene	260	264	nt	nt
828-00-2	Dimethoxane	270	278	nt	nt	2050-92-2	Di-n-amyamine	140	142	nt	nt
872-50-4	n-Methyl-2-pyrrolidone	130	132	T	nt	2163-42-0	2-Methyl-1,3-propanediol	310	314	T	nt
920-37-6	Chloroacrylonitrile	260 / 430	264 / 431	T	nt	2210-28-8	Propyl methacrylate	220	223	nt	nt
921-03-9	1,1,3-Trichloroacetone	260 / 390	261 / 391	T	nt	2425-79-8	1,4-Butanediol diglycidyl ether	270	275	nt	nt
998-30-1	Triethoxysilane	480	480	T	nt	2551-62-4	Sulfur hexafluoride	350 / 500	350 / 509	T	nt
999-97-3	Hexamethyldisilazane	140 / 480	142 / 480	T	nt	2642-71-9	Azinphos ethyl	460	462	nt	nt
1066-30-4	Chromic acetate	550	550	nt	nt	2696-92-6	Nitrosyl chloride	350	350	nt	nt
1300-71-6	Xylenol	310	316	nt	nt	2807-30-9	Ethylene glycol monopropyl ether	240	245	nt	nt
1300-73-8	Xylidine	140	145	nt	nt	2921-88-2	Chlorpyrifos	460	462	T	nt
1303-28-2	Arsenic pentoxide	365	365	nt	nt	3071-32-7	Ethyl benzene hydroperoxide	300	300	T	nt
1305-62-0	Calcium hydroxide	380	380	nt	nt	3132-64-7	Epibromohydrin	270	275	nt	nt
1305-78-8	Calcium oxide	380	380	nt	nt	3173-53-3	Cyclohexyl isocyanate	210	211	T	nt
1310-58-3	Potassium hydroxide	380	380	T	nt	3536-96-7	Vinylmagnesium chloride, 16.5%	470	470	T	nt
1310-65-2	Lithium hydroxide	380	380	T	nt	3607-78-1	1,1,1-3,3,3-Hexachloropropane	260	264	T	nt
1310-73-2	Sodium hydroxide	380	380	T	T	3811-04-9	Potassium chloride	340	340	nt	nt
1313-82-2	Sodium sulfide	340	340	nt	nt	3887-02-3	N-Methyl methacrylamide	130	135	T	nt
1314-56-3	Phosphoric anhydride	370	370	nt	nt	4098-71-9	Isophorone diisocyanate	210	211	T	nt
1317-65-3	Calcium carbonate	340	340	nt	nt	4109-96-0	Dichlorosilane	480	480	T	nt
1319-77-3	Cresol, mixed isomers	310	316	T	nt	4553-62-2	2-Methylglutaronitrile	430	431	T	nt
1321-12-6	Nitrotoluene, mixture	440	442	nt	nt	4635-87-4	3-Pentenenitrile	430	431	T	nt
1321-74-0	Divinyl benzene	290	292	nt	nt	4655-34-9	Isopropyl methacrylate	220	223	nt	nt
1327-53-3	Arsenic trioxide	365	365	nt	nt	5124-30-1	Methylene bis(cyclohexylisocyanate)	210	211	nt	nt
1330-20-7	Xylene, mixed isomers	290	292	T	nt	5216-25-1	4-Chlorobenzotrithloride	260	263	T	nt
1330-78-5	Tritolyl phosphate	460	462	T	nt	5989-27-5	d-Limonene	290	296	T	nt
1333-82-0	Chromic acid	370	370	T	T	6032-29-7	2-Pentanol	310	312	nt	nt
1336-21-6	Ammonium hydroxide	380	380	T	nt	6153-56-6	Oxalic acid dihydrate	100	104	T	nt

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

CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
6192-52-5	p-Toluene sulfonic acid monohydrate	500	504	T	nt	7722-64-7	Potassium permanganate	340	340	T	nt
6291-84-5	Methyl aminopropylamine	140	148	nt	nt	7722-84-1	Hydrogen peroxide	300	300	T	nt
6303-21-5	Hypophosphorus acid	370	370	T	nt	7726-95-6	Bromine	330	330	T	T
6915-15-7	Malic acid	100	104	nt	nt	7727-21-1	Potassium persulfate	340	340	nt	nt
7439-97-6	Mercury	330	330	T	nt	7732-18-5	Water	590	590	nt	nt
7446-09-5	Sulfur dioxide	350 / 365	350 / 365	T	nt	7757-82-6	Sodium sulfate	340	340	nt	nt
7446-11-9	Sulfur trioxide	365	365	T	T	7757-83-7	Disodium sulfite	340	340	nt	nt
7446-14-2	Lead sulfate	340	340	nt	nt	7758-94-3	Ferrous chloride	340	340	T	nt
7446-70-0	Aluminum chloride	360	360	T	nt	7758-98-7	Cupric sulfate	340	340	nt	nt
7447-41-8	Lithium chloride	340	340	T	nt	7775-27-1	Sodium persulfate	340	340	nt	nt
7487-88-9	Magnesium sulfate	340	340	nt	nt	7778-39-4	Arsenic acid	370	370	nt	nt
7487-94-7	Mercuric chloride	340	340	T	nt	7782-41-4	Fluorine	350	350	T	nt
7550-45-0	Titanium tetrachloride	360	360	T	nt	7782-50-5	Chlorine	330 / 350	330 / 350	T	T
7553-56-2	Iodine	330	330	T	T	7782-99-2	Sulfurous acid	370	370	nt	nt
7601-54-9	Sodium phosphate	340	340	nt	nt	7783-00-8	Selenious acid	370	370	nt	nt
7601-90-3	Perchloric acid	370	370	T	nt	7783-06-4	Hydrogen sulfide	350 / 500	350 / 502	T	nt
7631-90-5	Sodium bisulfite	340	340	nt	nt	7783-07-5	Hydrogen selenide	350	350	T	nt
7637-07-2	Boron trifluoride	350 / 360	350 / 360	T	nt	7783-20-2	Ammonium sulfate	340	340	nt	nt
7647-01-0	Hydrochloric acid	370	370	T	T	7783-50-8	Ferric fluoride	340	340	nt	nt
7647-01-0	Hydrogen chloride gas	350	350	T	T	7783-54-2	Nitrogen trifluoride	350	350	T	nt
7647-14-5	Sodium chloride	340	340	nt	nt	7783-70-2	Antimony pentafluoride	360	360	nt	nt
7647-18-9	Antimony pentachloride	360	360	T	nt	7783-82-6	Tungsten hexafluoride	350	350	T	nt
7664-38-2	Phosphoric acid	370	370	T	nt	7784-18-1	Aluminum fluoride	360	360	nt	nt
7664-39-3	Hydrofluoric acid	370	370	T	T	7784-30-7	Aluminum phosphate	340	340	nt	nt
7664-39-3	Hydrogen fluoride gas	350	350	T	T	7784-34-1	Arsenic trichloride	340	340	nt	nt
7664-39-3	Hydrogen fluoride liquid	350 / 370	350 / 370	T	T	7784-42-1	Arsine	350	350	T	nt
7664-41-7	Ammonia gas	350	350	T	T	7789-00-6	Potassium chromate	340	340	T	nt
7664-41-7	Ammonia liquid	350 / 380	350 / 380	T	nt	7789-21-1	Fluorosulfonic acid	370	370	T	nt
7664-93-9	Sulfuric acid	370	370	T	T	7789-23-3	Potassium fluoride	340	340	nt	nt
7681-49-4	Sodium fluoride	340	340	T	nt	7789-30-2	Bromine pentafluoride	360	360	nt	nt
7681-52-9	Sodium hypochlorite	340	340	T	nt	7789-75-5	Calcium fluoride	340	340	nt	nt
7697-37-2	Nitric acid	370	370	T	nt	7790-91-2	Chlorine trifluoride	350	350	T	nt
7705-08-0	Ferric chloride	340	340	T	nt	7790-94-5	Chlorosulfonic acid	370 / 500	370 / 504	T	T
7718-54-9	Nickel chloride	340	340	nt	nt	7791-25-5	Sulfuryl chloride	350 / 360	350 / 360	T	nt
7719-09-7	Thionyl chloride	360	360	T	nt	7803-51-2	Phosphine	350	350	T	nt
7719-12-2	Phosphorus trichloride	360	360	T	nt	7803-57-8	Hydrazine hydrate	280	280	T	nt

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CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable	CAS Number	Index Name	Class	Sub-Class	Limited Use	Re-usable
7803-62-5	Silane	480	480	T	nt	10588-01-9	Sodium dichromate	340	340	T	nt
8001-58-9	Creosote	310	316	T	nt	11097-69-1	PCB	260	263	T	nt
8002-05-9	Crude oil	290 / 590	294 / 590	T	nt	12125-01-8	Ammonium fluoride	340	340	T	nt
8004-13-5	Dowtherm Heat Transfer Fluid	590	590	T	nt	12125-02-9	Ammonium chloride	340	340	T	nt
8006-64-2	Turpentine	290	294	T	nt	12135-76-1	Ammonium sulfide	340	340	nt	nt
8008-20-6	Kerosene	290	291	T	nt	13284-42-9	2-Pentenenitrile	430	431	T	nt
8008-20-6	JP-8	290	291	T	nt	13463-39-3	Nickel carbonyl	470	470	T	nt
8008-20-6	Jet A fuel	290	291	T	nt	13463-67-7	Titanium dioxide	380	380	nt	nt
8012-95-1	Mineral oil	290	291	T	nt	13473-90-0	Aluminum nitrate	340	340	nt	nt
8014-95-7	Oleum	370	370	T	T	13530-65-9	Zinc chromate	340	340	nt	nt
8030-30-6	Naphtha	290	291	nt	nt	13780-03-5	Calcium bisulfate	340	340	nt	nt
8030-32-4	VM and P naphtha	290	291	T	nt	13814-96-5	Lead fluoroborate	340	340	nt	nt
8032-32-4	Mineral oil	290	291	T	nt	13952-84-6	sec-Butylamine	140	141	nt	nt
8052-41-3	Stoddard solvent	290	291	T	nt	14307-35-8	Lithium chromate	340	340	nt	nt
9106-87-9	Polymethylene polyphenylpolyisocyanate	210	212	T	nt	14486-19-2	Cadmium fluoroborate	360	360	nt	nt
10024-97-2	Nitrous oxide	350	350	T	nt	15120-17-9	Sodium arsenite	340	340	nt	nt
10025-67-9	Disulfur dichloride	500	502	T	nt	16721-80-5	Sodium hydrosulfide	340	340	T	nt
10025-78-2	Trichlorosilane	480	480	T	nt	16752-77-5	Methomyl	230	233	T	nt
10025-87-3	Phosphorus oxychloride	360	360	T	nt	16872-11-0	Fluoroboric acid	370	370	T	nt
10025-91-9	Antimony trichloride	340	340	nt	nt	16961-83-4	Fluorosilicic acid	370	370	T	nt
10026-04-7	Silicon tetrachloride	360 / 480	360 / 480	T	nt	19287-45-7	Diborane	350	350	T	nt
10034-85-2	Hydriodic acid	370	370	T	nt	19686-73-8	1-Bromo-2-propanol	260 / 310	261 / 315	nt	nt
10035-10-6	Hydrobromic acid	370	370	T	nt	21645-51-2	Aluminum hydroxide	380	380	nt	nt
10039-54-0	Hydroxylamine sulfate	500	507	nt	nt	23135-22-0	Oxamyl	130	137	nt	nt
10043-01-3	Aluminum sulfate	340	340	nt	nt	25013-15-4	Methylstyrene	290	292	nt	nt
10043-35-3	Boric acid	370	370	nt	nt	25103-12-2	Trioctyl phosphate	460	462	nt	nt
10043-52-4	Calcium chloride	340	340	T	nt	25103-58-6	tert-Dodecyl mercaptan	500	501	nt	nt
10049-04-4	Chlorine dioxide	350	350	T	nt	25154-52-3	n-Nonyl phenol	310	316	nt	nt
10101-53-8	Chromic sulfate	340	340	nt	nt	25155-15-1	p-Cymene	290	292	nt	nt
10102-43-9	Nitric oxide	350	350	T	nt	25155-30-0	Dodecyl benzene sulfonate	500	507	nt	nt
10102-44-0	Nitrogen dioxide	350	350	T	nt	25323-30-2	Dichloroethylene, all isomers	260	264	nt	nt
10217-52-4	Hydrazine hydrate	280	280	T	nt	25550-58-7	Dinitrophenol	310 / 440	316 / 442	nt	nt
10294-34-5	Boron trichloride	350 / 360	350 / 360	T	nt	25899-50-7	cis-2-Pentenenitrile	430	431	T	nt
10544-72-6	Nitrogen tetroxide	350	350	T	nt	26447-14-3	1,2-Epoxy-3-(toloxy)propane	270	275	nt	nt
10545-99-0	Sulfur dichloride	500	502	T	nt	26471-62-5	Toluene-1,3-diisocyanate	210	212	T	nt

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26746-38-3	Dibutylphenol	310	316	nt	nt	mixture	Chemidize 727 ND	590	590	T	nt
28519-06-4	Chlorodecane mixed isomers	260	261	nt	nt	mixture	Cyanex®	460	461	nt	T
30525-89-4	Paraformaldehyde	120	121	nt	nt	mixture	Cyanogen bromide 30% in bromic acid	345 / 350	345 / 350	nt	T
30894-74-7	2,3-Dichloro-6-isopropyl-S-triazine	270	274	T	nt	mixture	m-Cresol 55%, p-Cresol 30%, Phenol 15%	310	316	T	nt
50782-69-9	VX Nerve Agent	460 / 595	462 / 595	T	nt	mixture	Decontaminating agent DS-2	590	590	T	nt
52583-42-3	Nitric acid, red fuming	370	370	T	nt	mixture	Dichlorotoluene	290	263	T	nt
57292-32-7	Aluminum sulfate hydrate	340	340	T	nt	mixture	Diesel test fuel	290	291	T	nt
63885-09-6	Isocetaldehyde	120	121	nt	nt	mixture	DuPont Activators with hexamethylene diisocyanate	210 / 590	211 / 590	T	nt
64475-85-0	Mineral spirits	290	291	T	nt	mixture	Ethyl benzene 80%, 4,6-Dinitro-o-cresol 20%	590	590	T	nt
67664-94-2	Epoxytrichloropropane	270	275	nt	nt	mixture	Ethylene oxide, 10% in HCFC 124	270	274	T	nt
68131-30-6	Green liquor	590	590	T	nt	mixture	Fuel oil	290	291	T	nt
68131-33-9	White liquor	590	590	T	nt	mixture	Glade Intech 200	590	590	T	nt
68334-30-5	Diesel fuel	290	291	T	nt	mixture	Hexamethylene diisocyanate in DuPont Activators	590	590	T	nt
86290-81-5	Gasoline	290	291 / 292	T	nt	mixture	JP-4 jet fuel	290	291	T	nt
95660-51-8	Skydrol®	460	462	T	nt	mixture	Organo-Tin Paint	470	470	T	nt
106602-80-6	Otto Fuel II	590	590	T	nt	mixture	Sodium-t-amylate / t-amyl alcohol	590	590	T	nt
191681-14-8	AFFF	590	590	T	nt	mixture	Tetramethyltin in n-pentane	590	590	T	nt
308074-23-9	Black Liquor	590	590	T	nt						



## For more information about DuPont Personal Protection

Web site: **[www.personalprotection.dupont.com](http://www.personalprotection.dupont.com)**

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Customer Service: **1-800-931-3456**

E-mail: **[personalprotection@usa.dupont.com](mailto:personalprotection@usa.dupont.com)**

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