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DuPont Permeation Guide

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INC.



Tychem®

Tyvek®

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Caution:

This information is based upon technical data that DuPont believes to be reliable on the date issued. It is subject to revision as additional knowledge and experience are gained. 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.

It is the user's responsibility to determine the level of toxicity and the proper personal protective equipment needed. 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. If fabric becomes torn,

abraded or punctured, or if seams or closures fail, or if attached gloves, visors, etc. are damaged, end user should discontinue use of garment to avoid potential exposure to chemical.

Since conditions of use are outside our control, ***DuPont makes no warranties, express or implied, including, without limitation, no warranties of merchantability or fitness for a particular use and assume no liability in connection with any use of this information.***

This information is not intended as a license to operate under or a recommendation to infringe any patent, trademark or technical information of DuPont or others covering any material or its use.

Warning:

- Tychem® and Tyvek® fabrics should not be used around heat, flames, sparks or in potentially flammable or explosive environments. Only Tychem® ThermoPro, Tychem® Reflector® and Tychem® TK styles 600T/601T (with aluminized outer suit) garments are designed and tested to help reduce burn injury during escape from a flash fire. Users of Tychem® ThermoPro, Tychem® Reflector® and Tychem® TK styles 600T/601T (with aluminized outer suit) garments should not knowingly enter an explosive environment.
- Tychem® garments with attached socks must be worn inside protective outer footwear and are not suitable as outer footwear. These attached socks do not have adequate durability or slip resistance to be worn as the outer foot covering.

How to Use this Permeation Guide

To Find Permeation Test Results

1. Locate the desired chemical in the Chemical Index (Appendix).

The Chemical Index is presented in two ways:

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

For each chemical, the following information is listed:

- Chemical name
- CAS number
- Chemical class and subclass number(s)
- Synonyms, if applicable

2. Using the chemical name or CAS number, locate the class and subclass(es) of the chemical in the permeation index table.
3. Using the class and subclass, go to the chemical permeation data tables to locate the chemical. The range of fabrics is listed across the top of the table. If testing was done, the permeation data is reported.

Independent Testing

All testing reported in this guide was performed by a third party laboratory.

Permeation data for industrial chemicals is obtained per ASTM F739. Normalized breakthrough times (the time at which the permeation rate exceeds $0.1 \mu\text{g}/\text{cm}^2/\text{min}$) are reported in minutes. All chemicals have been tested between approximately 20°C and 27°C unless otherwise stated. All chemicals have been tested at a concentration of greater than 95% unless otherwise stated.

Chemical warfare agents (Lewisite, Sarin, Soman, Sulfur Mustard, Tabun and VX Nerve Agent) have been tested at 22°C and 50% relative humidity per military standard MIL-STD-282. "Breakthrough time" for chemical warfare agents is defined as the time when the cumulative mass which permeated through the fabric exceeds the limit in MIL-STD-282 [either 1.25 or $4.0 \mu\text{g}/\text{cm}^2$].

What is Permeation?

Permeation is the absorption, diffusion and desorption of a chemical through a barrier material at the molecular level. Penetration, on the other hand, is the bulk passage of a chemical through a pore or opening in the barrier material.

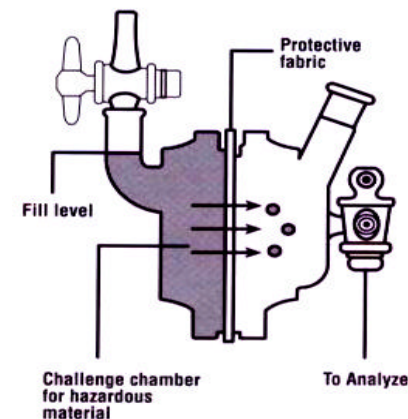
To help you understand the difference between these two mechanisms, consider this example. Have you ever opened a bottle of soda to find out that it was flat? There aren't any holes in the bottle. The liquid is still inside. Why is the soda flat? It's flat because the carbon dioxide that gives soda its fizz has permeated through the bottle over time. If you opened a fresh bottle of soda and did not replace the cap, the carbon dioxide would just escape out of the top of the bottle. That would be penetration.

Permeation tests are best suited for testing liquids and vapors.

How Permeation Tests Are Conducted

Other than for Chemical Warfare Agents, permeation tests are conducted following 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 fabric and is detected on the inside surface of the fabric, it is said to have permeated through the fabric.



ASTM F739 Test Cell

Definitions of Key Terms for ASTM F739

Breakthrough time: In permeation testing, the actual breakthrough time is the length of time it takes for a challenge chemical to permeate the fabric being tested. It is measured from the point of initial contact of the challenge chemical with the outside surface of the fabric to the time that the challenge chemical is detected on the inside of the fabric. Sensitive analytical equipment is often used to measure the amount of chemical permeating the fabric.

Normalized, or sometimes called "standardized" breakthrough time, is a measure of the elapsed time from initial contact with the challenge chemical until the chemical permeates the fabric at a rate of 0.1 $\text{g/cm}^2/\text{min}$. This is defined in ASTM F739 test method. Normalized breakthrough times eliminate biased results due to differences in the sensitivity of the detection equipment and are thus the industry

standard measure of breakthrough time. This DuPont Permeation Guide reports normalized breakthrough times using the 0.1 $\text{g/cm}^2/\text{min}$ criteria.

A normalized breakthrough time of >480 minutes does not always mean that there was no chemical permeation; it means that the rate of permeation did not exceed 0.1 $\text{g/cm}^2/\text{min}$ during the 8 hour test. If the permeation rate exceeds 0.1 $\text{g/cm}^2/\text{min}$ in the first 10 minutes of testing, DuPont chooses to report the breakthrough time as "immediate" (imm.).

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

Physical phase: The phase of the challenge chemical during the test: solid-S, liquid-L, gas-G.

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

150 Hydroxylamines and Ketoximes

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
- 226 Benzoates and Phthalates

230 Non-Carboxylic Esters

- 233 Carbamates and Others

240 Ethers

- 241 Aliphatic and Alicyclic
- 242 Aromatic
- 244 Ketals and Acetals
- 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 (includes alcohols)

- 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 and Inorganic Salt Solutions

- 345 Inorganic Cyano Compounds

350 Inorganic Gases and Vapors

360 Inorganic Acid Halides

- 365 Inorganic Acid Oxides

370 Inorganic Acids

380 Inorganic Bases

390 Ketones

- 391 Aliphatic and Alicyclic

430 Nitriles

- 431 Aliphatic and Alicyclic
- 432 Aromatic

440 Nitro Compounds

- 441 Unsubstituted
- 442 Substituted

450 Nitroso Compounds

460 Organo-Phosphorus Compounds

- 462 Derivatives of Phosphorus-based acids

470 Organo-Metallic Compounds

480 Organo-Silicon Compounds

500 Sulfur Compounds

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

550 Organic Salts and Organic Salt Solutions

590 Miscellaneous (Not classified)

990 Cytostatic drugs (Active Pharmaceutical Potent Compound)

*Partial list based on ASTM F1186. A complete copy of ASTM F1186 may be purchased from ASTM (www.astm.org).

ASTM F1001 List of Challenge Chemicals (Permeation Test Method ASTM F739)

Sub-class	Chemical Name	CAS Number	Phase	Normalized Breakthrough Time (Minutes)										
				Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
390	Acetone (>95%)	67-64-1	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480
430	Acetonitrile (>95%)	75-05-8	L			imm.	60	imm.	>480	>480	>480	>480	>480	>480
350 / 380	Ammonia (>95%, gas)	7664-41-7	G			imm.	26	imm.	20	90	133	133	>480	>480
290	Butadiene, 1,3- (>95%, gas)	106-99-0	G			imm.	>480	>480	>480	>480	>480	>480	>480	>480
500	Carbon disulfide (>95%)	75-15-0	L			imm.	imm.	16	>480	>480	>480	>480	>480	>480
330 / 350	Chlorine (>95%, gas)	7782-50-5	G			imm.	>480	imm.	>480	>480	>480	>480	>480	>480
260	Dichloromethane (>95%)	75-09-2	L			imm.	imm.	imm.	imm.	imm.	>480	>480	>480	>480
140	Diethylamine (>95%)	109-89-7	L			imm.	15	>480	>480	>480	>480	>480	>480	>480
130	Dimethylformamide, N,N- (>95%)	68-12-2	L			imm.	90	>480	>480	>480	>480	>480	>480	>480
220	Ethyl acetate (>95%)	141-78-6	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480
270	Ethylene oxide (>95%, gas)	75-21-8	G			imm.	imm.	>480	126	>480	>480	>480	>480	>480
290	Hexane, n- (>95%)	110-54-3	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480
350	Hydrogen chloride (>95%, gas)	7647-01-0	G			imm.	>480	>480	>480	>480	>480	>480	>480	>480
310	Methanol (>95%)	67-56-1	L			imm.	>480	imm.	117	>480	185	>480	>480	>480
260	Methyl chloride (>95%, gas)	74-87-3	G			imm.	>480	>480	>480	>480	>480	>480	>480	>480
440	Nitrobenzene (>95%)	98-95-3	L			imm.	57	>480	>480	>480	>480	>480	>480	>480
380	Sodium hydroxide (50%)	1310-73-2	L	48	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
370	Sulfuric acid (>95%)	7664-93-9	L		>480	>480	>480	>480	>480	50	>480	>480	>480	>480
260	Tetrachloroethylene, 1,1,2,2- (>95%)	127-18-4	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480
240	Tetrahydrofuran (>95%)	109-99-9	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480
290	Toluene (>95%)	108-88-3	L			imm.	imm.	>480	>480	>480	>480	>480	>480	>480

> = greater than imm. = immediate (<10 minutes) {empty} = not tested L = Liquid G = Gas S = Solid

* Actual breakthrough time; normalized breakthrough time is not available.

** Solid tested, vapor phase permeation measured.



Chemical Permeation Data Tables

C	l	a	s	S	u	b	C	l	a	s	Chemical Name	CAS	P	h	a	s	e	Breakthrough Time (Minutes)											
																		Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR	
100 Carboxylic acids																													
102 Aliphatic and Alicyclic, Unsubstituted																													
Acetic acid (84%)												64-19-7	Liquid																
Acetic acid (10%)												64-19-7	Liquid	imm															
Acetic acid (5%)												64-19-7	Liquid	imm															
Acetic acid (>95%)												64-19-7	Liquid			imm.	>480	84	>480	>480	339	>480	>480	>480					
Acetic acid (2%)												64-19-7	Liquid	imm															
Acetic acid (30%)												64-19-7	Liquid	imm															
Acrylic acid (>95%)												79-10-7	Liquid			imm.	>480		>480	>480	270	>480	>480	>480				270	
Formic acid (90%)												64-18-6	Liquid																
Formic acid (30%)												64-18-6	Liquid																
Formic acid (>95%)												64-18-6	Liquid			imm.	>480	>480	260	260	>480	>480	>480	>480	>480	>480			
Methacrylic acid (>95%)												79-41-4	Liquid						>480	>480	>480	>480	>480	>480	>480	>480			
103 Aliphatic and Alicyclic, Substituted																													
Chloroacetic acid (70%-80%)												79-11-8	Liquid				370	>480	>480	>480	>480	>480	>480	>480	>480	>480	>480		
Chloroacetic acid (>95%)												79-11-8	Liquid								>480	>480	>480	>480	>480	>480			
Glycolic acid (sat. sol. in water)												79-14-1	Liquid								>480	>480	>480	>480	>480	>480	>480		
Thioglycolic acid (>95%)												68-11-1	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	>480			
Trichloroacetic acid (>95%)												76-03-9	Liquid						>480	>480									
Trifluoroacetic acid (>95%)												76-05-1	Liquid				>480		>480	>480			>480						
104 Aliphatic and Alicyclic, Polybasic																													
Citric acid (30%)												77-92-9	Liquid																
Citric acid (50% in water)												77-92-9	Liquid					>480											
Oxalic acid (10.5%)												144-62-7	Liquid								>480	>480	>480	>480					
Oxalic acid (sat.sol. in water)												144-62-7	Liquid					>480											
110 Acid Halides, Carboxylic																													
110 Acid Halides, Carboxylic - All																													
Perfluoro-2-propoxy propionyl fluoride (>95%)												2062-98-8	Liquid									>480	>480	>480	>480				
111 Aliphatic and Alicyclic																													
Acetyl chloride (>95%)												75-36-5	Liquid					63	>480	>480	>480	181	181	>480		181			
Acryloyl Chloride (>95%)												814-68-6	Liquid				imm.	55	334	334									
Chloroacetyl chloride (>95%)												79-04-9	Liquid				120	77			160	160		160		160			
Dichloroacetyl chloride (>95%)												79-36-7	Liquid						160	160	100	100		100	>480	100			
112 Aromatic																													
Benzoyl chloride (>95%)												98-88-4	Liquid					>480	>480	>480	>480	>480	>480	>480	>480				
113 Chloroformates																													
Benzyl chloroformate (>95%)												501-53-1	Liquid					>480											
Methyl chloroformate (>95%)												79-22-1	Liquid								>480	>480	>480	>480		>480			
120 Aldehydes																													

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)											
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR	
121 Aliphatic and Alicyclic																
		Acetaldehyde (>95%)	75-07-0	Liquid							imm.	>480	>480	>480	>480	>480
		Acrolein (>95%, 10 g/m² coverage)	107-02-8	Liquid							>480	>480				
		Acrolein (>95%)	107-02-8	Liquid				24	178	63	63	>480	>480	>480	>480	>480
		Butyraldehyde, n- (>95%)	123-72-8	Liquid			imm.	41			>480		>480	>480	>480	>480
		Formaldehyde (100 ppm)	50-00-0	Vapor								>480	>480	>480	>480	>480
		Formalin (3.7% Formaldehyde, 1.0-1.5% Methanol)	mixture	Liquid			>480									
		Formalin (37% Formaldehyde, 10-15% Methanol)	mixture	Liquid			imm.	>480	>480	>480	>480	>480	>480	>480	>480	>480
		Glutaraldehyde (5% in water)	111-30-8	Liquid			>480					>480	>480	>480	>480	>480
		Glutaraldehyde (50%)	111-30-8	Liquid				>480		170	170	>480	>480	>480	>480	>480
		trans-Crotonaldehyde (>95%)	123-73-9	Liquid				34				>480	>480	>480	>480	>480
122 Aromatic																
		Furfural (>95%)	98-01-1	Liquid				227	>480	>480	>480	>480	>480	>480	>480	>480
130 Amides																
132 Aliphatic and Alicyclic																
		Dimethylacetamide, N,N- (8% in water)	127-19-5	Liquid		>480	>480									
		Dimethylacetamide, N,N- (>95%)	127-19-5	Liquid		imm		96	>480	>480	>480	>480	>480	>480	>480	>480
		Dimethylformamide, N,N- (>95%)	68-12-2	Liquid			imm.	90	>480	>480	>480	>480	>480	>480	>480	>480
		Methyl-2-pyrrolidone, N- (>95%)	872-50-4	Liquid				>480		>480	>480	>480	>480	>480	>480	>480
		Methylformamide, N- (>95%)	123-39-7	Liquid					>480	>480	>480					
135 Acrylamides																
		Acrylamide (50% in water)	79-06-1	Liquid				>480		>480	>480	>480	>480	>480	>480	>480
140 Amines																
141 Aliphatic and Alicyclic, Primary																
		Butylamine, n- (>95%)	109-73-9	Liquid					>480	200	200	>480	>480	>480	>480	>480
		Butylamine, tert- (>95%)	75-64-9	Liquid								>480	>480	>480	>480	>480
		Diisopropylethylamine (DIPEA)	7087-68-5	Liquid					>480		>480					
		Ethanolamine (>95%)	141-43-5	Liquid					>480	>480	>480	>480	>480	>480	>480	>480
		Ethylamine (>95% at 15° C)	75-04-7	Liquid								361	361	>480	361	
		Isopropylamine (>95%)	75-31-0	Liquid					15	>480	>480	>480	>480	>480	>480	>480
		Methylamine (50% in water)	74-89-5	Liquid								232	232	232	232	232
		Methylamine (40% in water)	74-89-5	Liquid					140			261	261	261	261	261
		Methylamine (>95%)	74-89-5	Vapor						>480	>480	105	105	>480	105	105
		Propylamine, n- (>95%)	107-10-8	Liquid					100							
142 Aliphatic and Alicyclic, Secondary																
		Diethanolamine (>95%)	111-42-2	Liquid					>480							
		Diethylamine (>95%)	109-89-7	Liquid			imm.	15	>480	>480	>480	>480	>480	>480	>480	>480
		Dimethylamine (>95%)	124-40-3	Vapor					>480	>480	>480				>480	>480
		Hexamethyldisilazane (>95%)	999-97-3	Liquid				>480				>480	>480	>480	>480	>480

Chemical Permeation Data Tables

[illegible]

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
		Ethyl Cellosolve® acetate (>95%)	111-15-9	Liquid				238	>480	>480	>480	>480	>480	>480	>480
		Methyl Cellosolve® (>95%)	109-86-4	Liquid				>480	405	>480	>480	>480	>480	>480	>480
		Methyl Cellosolve® acetate (>95%)	110-49-6	Liquid				>480	>480	>480	>480	>480	>480	>480	>480
		Polyethylene glycol dimethyl ether (>95%)	24991-55-7	Liquid							>480				
260 Halogen Compounds															
260 Halogen Compounds - All															
		Perfluoro-2-propoxy propionyl fluoride (>95%)	2062-98-8	Liquid								>480	>480	>480	>480
261 Aliphatic and Alicyclic															
		Carbon tetrachloride (>95%)	56-23-5	Liquid					>480	11	11	>480	>480	>480	>480
		Chlordane (>95%)	57-74-9	Liquid								>480	>480	>480	>480
		Chlordane (44%)	57-74-9	Liquid					>480						
		Chloroethanol, 2- (>95%)	107-07-3	Liquid			imm.		>480	>480	>480	>480	>480	>480	>480
		Chloroform (>95%)	67-66-3	Liquid			imm.	imm.	imm.	imm.	imm.	>480	>480	>480	>480
		Chloropicrin (>95%)	76-06-2	Liquid							>480	>480			
		Dibromo-3-chloropropane, 1,2- (>95%)	96-12-8	Liquid					>480						
		Dichloroacetone (>95% at 40° C)	534-07-6	Liquid										>480	
		Dichloroacetone (>95% at 45° C)	534-07-6	Liquid						>480	>480				
		Dichloroethyl ether (>95%)	111-44-4	Liquid					>480	>480	>480	>480	>480	>480	>480
		Dichloromethane (>95%)	75-09-2	Liquid			imm.	imm.	imm.	imm.	imm.	>480	>480	>480	>480
		Dichloropropene, 1,3- (>95%)	542-75-6	Liquid				imm.	imm.	25	25		imm.		
		Dichloropropene, 2,3- (>95%)	78-88-6	Liquid						25	25	>480	>480	>480	>480
		Diiodo-1,1,2,2-tetrafluorobutane, 1,4- (>95%)	755-95-3	Liquid								>480	>480	>480	>480
		Epichlorohydrin (>95%)	106-89-8	Liquid				15	67	372	372	>480	>480	>480	>480
		Ethyl chloride (>95%)	75-00-3	Liquid										>480	
		Ethylene dibromide (>95%)	106-93-4	Liquid					>480	288	288	>480	>480	>480	>480
		Ethylene dichloride (>95%)	107-06-2	Liquid				imm.	>480	93	93	>480	>480	>480	>480
		Hexafluoroethane (>95%)	76-16-4	Vapor								>480	>480	>480	>480
		Hexafluoroisobutylene (>95%)	382-10-5	Vapor								>480	>480	>480	>480
		Lindane (sat. sol. in acetone)	58-89-9	Liquid								>480	>480	>480	>480
		Lindane (sat. sol. in methanol)	58-89-9	Liquid										>480	
		Methyl bromide (>95%)	74-83-9	Vapor				>480				>480	>480	>480	>480
		Methyl chloride (>95%, gas)	74-87-3	Vapor			imm.	>480	>480	>480	>480	>480	>480	>480	>480
		Methyl chloride (>95%, liquid, -70° C)	74-87-3	Liquid										>180	
		Methyl fluoride (>95%)	593-53-3	Vapor								>480	>480	>480	>480
		Methyl iodide (>95%)	74-88-4	Liquid				imm.		296	296	>480	>480	>480	>480
		Methylene bromide (>95%)	74-95-3	Liquid					40	imm.	imm.				
		Propylbromide, n- (>95%)	106-94-5	Liquid				12	>480				12		
		Propylene dichloride (>95%)	78-87-5	Liquid								>480	>480	>480	>480
		Tetrachloroethane, 1,1,2,2- (>95%)	79-34-5	Liquid				98	>480	>480	>480	>480	>480	>480	>480

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
		Tetrafluoroethane, 1,1,1,2- (>95%)	811-97-2	Liquid				>480					>480		
		Tetrafluoromethane (>95%)	75-73-0	Vapor								>480	>480	>480	>480
		Trichloro-1,2,2-trifluoroethane, 1,1,2- (>95%)	76-13-1	Vapor					>480			>480	>480	>480	>480
		Trichloroacetone, 1,1,3- (>95%)	921-03-9	Liquid						>480	>480				
		Trichloroethane, 1,1,1- (>95%)	71-55-6	Liquid					>480		>480	>480	>480	>480	>480
		Trichloroethane, 1,1,2- (>95%)	79-00-5	Liquid						232		>480	>480	>480	>480
		Trifluoroacetic acid (>95%)	76-05-1	Liquid				>480			>480	>480		>480	
		Trifluoromethane (>95%)	75-46-7	Vapor								>480	>480	>480	>480
263 Aromatic															
		Benzotrichloride (>95%)	98-07-7	Liquid					>480						
		Bromofluorobenzene, 4- (>95%)	460-00-4	Liquid					>480	>480	>480	>480	>480	>480	>480
		Chloro-benzotrifluoride, 4- (>95%)	98-56-6	Liquid					460						
		Chlorobenzene (>95%)	108-90-7	Liquid				imm.	63	>480	>480	>480	>480	>480	>480
		Chlorobenzotrichloride, 4- (>95%)	5216-25-1	Liquid					>480						
		Chlorophenol, 4- (sat. sol. in mathanol)	106-48-9	Liquid								>480	>480	>480	>480
		Chlorotoluene, o- (>95%)	95-49-8	Liquid				13		>480	>480	>480	>480	>480	>480
		Cyanuric chloride (20%, Toluene 80%)	108-77-0	Liquid								>480	>480	>480	>480
		Dichloroaniline, 3,4- (solid)	95-76-1	Solid								>480	>480**	>480	>480
		Dichloroaniline, 3,4- (>95%, liquid, 70° C)	95-76-1	Liquid				imm.				284	284	284	284
		Dichlorobenzene, 1,2- (>95%)	95-50-1	Liquid				76	>480	>480		>480	>480	>480	>480
		Dichlorobenzene, 1,3- (>95%)	541-73-1	Liquid				45	>480	>480		>480	>480	>480	>480
		Dichlorobenzene, 1,4 (50% solution in Ethanol)	106-46-7	Liquid				>480	131	>480		>480	>480	>480	>480
		Fluorobenzene (>95%)	462-06-6	Liquid				imm.	>480	>480	>480	>480	>480	>480	>480
		Nitrochlorobenzene, o-	88-73-3	Solid				15							
		Nitrochlorobenzene, p-	100-00-5	Solid				imm.							
		PCB (50% in trichlorobenzene)	mixture	Liquid					>480			>480	>480	>480	>480
		PCB 1254 (50% in mineral oil)	mixture	Liquid				>480					>480		
		PCB 1254 (90%)	11097-69-1	Liquid				55	>480				>480		
		PCB 1254 (>95%)	11097-69-1	Liquid											
		PCB gas condensate (>95%)	mixture	Liquid						>480	>480				
		PCB in transformer oil (>95%)	mixture	Liquid						>480	>480				
		Tetrachloro-bisphenol -A, 2,2',6,6'	79-95-8	Solid						>480	>480				
		Trichlorobenzene, 1,2,4- (>95%)	120-82-1	Liquid				imm.	87	>480	>480	>480	>480	>480	>480
264 Vinylc															
		Chloroacrylonitrile, 2- (>95%)	920-37-6	Liquid						>480	>480				
		Hexachlorobutadiene (>95%)	87-68-3	Liquid								>480	>480	>480	>480
		Tetrachloroethylene, 1,1,2,2- (>95%)	127-18-4	Liquid				imm.	imm.	>480	>480	>480	>480	>480	>480
		Trichloroethylene (>95%)	79-01-6	Liquid				imm.		>480	>480	>480	>480	>480	>480
		Vinyl chloride (>95%, gas)	75-01-4	Vapor				>480	>480	>480	>480	>480	>480	>480	>480

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
		Vinylidene chloride (>95%)	75-35-4	Liquid					170	>480	>480	>480	>480	>480	>480
		trans-1,4-Dichloro-2-butene (>95%)	110-57-6	Liquid			75*								
265 Allylic															
		Allyl chloride (>95%)	107-05-1	Liquid				imm.	12	447	447	>480	>480	>480	>480
266 Benzylic															
		Benzyl chloride (>95%)	100-44-7	Liquid					>480	>480	>480	>480	>480	>480	>480
270 Heterocyclic Compounds															
271 Nitrogen, Pyridines															
		Aminopyridine, 2- (saturated solution)	504-29-0	Liquid				>480					>480		
		Nicotine (>95%)	54-11-5	Liquid					>480	>480	>480	>480	>480	>480	>480
		Picoline, 2- (>95%)	109-06-8	Liquid					>480	>480	>480	>480	>480	>480	>480
		Picoline, 3- (>95%)	108-99-6	Liquid					>480	>480	>480	>480	>480	>480	>480
		Pyridine (>95%)	110-86-1	Liquid				31	>480	>480	>480	>480	>480	>480	>480
		Vinylpyridine, 4- (>95%)	100-43-6	Liquid				15					15		
274 Nitrogen, Others															
		Aminoethylpiperazine (>95%)	140-31-8	Liquid				>480	>480	>480	>480	>480	>480	>480	>480
		Dichloro-6-isopropyl-S-triazine, 2,4- (22% in toluene)	30894-74-7	Liquid								>480	>480	>480	>480
		Ethyleneimine (>95%)	151-56-4	Liquid								59	59	>480	59
		Propylene imine (>95%)	75-55-8	Liquid								150	150	150	150
		Pyrrolidine (>95%)	123-75-1	Liquid						100	100	413	413	413	413
275 Oxygen, Epoxides															
		Bisphenol-A diglycidyl ether (>95%)	1675-54-3	Liquid				>480		>480	>480	>480	>480	>480	>480
		Epichlorohydrin (>95%)	106-89-8	Liquid				15	67	372	372	>480	>480	>480	>480
		Ethylene oxide (>95%, liquid, 0° C)	75-21-8	Liquid								>480	>480	>480	>480
		Ethylene oxide (>95%, liquid, 11° C)	75-21-8	Liquid					18						
		Ethylene oxide (>95%, gas)	75-21-8	Vapor			imm.	imm.	>480	126	>480	>480	>480	>480	>480
		Ethylene oxide (>95%, liquid, -70° C)	75-21-8	Liquid										>180	
		Ethylene oxide mixture (10% in HCFC 124)	mixture	Vapor										>480	
		Phenyl glycidyl ether (>95%)	122-60-1	Liquid				>480					>480		
		Propylene oxide, 1,2- (>95%)	75-56-9	Liquid					30	14	20	>480	>480	>480	>480
		Tetramethylethylene oxide (>95%)	5076-20-0	Liquid										>480	
277 Oxygen, Furans															
		Furfural (>95%)	98-01-1	Liquid				227	>480	>480	>480	>480	>480	>480	>480
278 Oxygen, Others															
		Diketene Acetone (>95%)	5394-63-8	Liquid						>480					
		Dioxane, 1,4- (>95%)	123-91-1	Liquid					>480	>480	>480	>480	>480	>480	>480
280 Hydrazines															
280 Hydrazines - All															
		Dimethylhydrazine, 1,1- (>95%)	57-14-7	Liquid				13				>480*	>480*	>480*	>480*



Chemical Permeation Data Tables

C	l	a	s	S	u	b	C	l	a	s	Chemical Name	CAS	P	h	a	s	Breakthrough Time (Minutes)														
																	Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR				
											Hydrazine (>95%)	302-01-2	Liquid					>480				283	283	>480	>480	>480	>480	>480	>480		
											Hydrazine (85%)	302-01-2	Liquid																		
											Hydrazine hydrate (50%)	10217-52-4	Liquid													>480					
											Hydrazine hydrate (85%)	10217-52-4	Liquid											440	440	440	440		440		
											Hydrazine hydrate (>95%)	10217-52-4	Liquid															>480			
											Methyl hydrazine (>95%)	60-34-4	Liquid										283	283	>480	>480	>480	>480	>480	>480	
290 Hydrocarbons																															
290 Hydrocarbons - All																															
											Diethylbenzene (>95%)	25340-17-4	Liquid									31			>480	>480	>480	>480	>480	>480	
291 Aliphatic and Alicyclic, Saturated																															
											Cyclohexane (>95%)	110-82-7	Liquid											>480	>480	>480	>480	>480	>480	>480	
											Diesel automotive test fuel (>95%)	mixture	Liquid						imm.												
											Diesel fuel (>95%)	68334-30-5	Liquid									48	199	>480	>480	>480	>480	>480	>480	>480	
											Fuel oil (>95%)	68476-30-2	Liquid							imm.		>480						>480			
											Gasoline (>95%)	86290-81-5	Liquid									imm.	>480	30	30	>480	>480	>480	>480	>480	
											Gasoline, E-10 (>95%)	308066-70-8	Liquid									16					16				
											Heptane (>95%)	142-82-5	Liquid										>480								
											Hexane, n- (>95%)	110-54-3	Liquid							imm.		imm.	>480	>480	>480	>480	>480	>480	>480	>480	
											JP-4 jet fuel (>95%)	50815-00-4	Liquid									imm.				>480	>480	>480	>480	>480	
											JP-8 jet fuel (>95%)	94114-58-6	Liquid									58				>480	>480	>480	>480	>480	
											Kerosene (>95%)	8008-20-6	Liquid									58	>480	>480	>480	>480	>480	>480	>480	>480	
											Mineral oil (>95%)	8012-95-1	Liquid									>480					>480				
											Mineral spirits (>95%)	64475-85-0	Liquid							imm.		190				>480	>480	>480	>480	>480	
											Octane, n- (>95%)	111-65-9	Liquid													>480	>480	>480	>480	>480	
											Propane (>95%)	74-98-6	Vapor																>480		
											Stoddard solvent (>95%)	8052-41-3	Liquid												>480	>480	>480	>480	>480	>480	
											VM&P Naphtha (>95%)	8030-30-6	Liquid									imm					>480	>480	>480	>480	>480
292 Aromatic																															
											Benzene (>95%)	71-43-2	Liquid									imm.	>480	>480	>480	>480	>480	>480	>480	>480	
											Cumene (>95%)	98-82-8	Liquid										364	>480	>480	>480	>480	>480	>480	>480	
											Ethyl benzene (>95%)	100-41-4	Liquid									imm.	>480	>480	>480	>480	>480	>480	>480	>480	
											Styrene (>95%)	100-42-5	Liquid									16	>480	>480	>480	>480	>480	>480	>480	>480	
											Toluene (>95%)	108-88-3	Liquid								imm.	imm.	>480	>480	>480	>480	>480	>480	>480	>480	
											Xylene, mixed isomers (>95%)	1330-20-7	Liquid										>480	>480	>480	>480	>480	>480	>480	>480	
											Xylene, o- (>95%)	95-47-6	Liquid										>480								
293 Aromatic Polynuclear																															
											Anthracene (sat. sol. in toluene)	120-12-7	Liquid										>480	>480	>480						
											Naphthalene (25% solution in Diethylene glycol dimethyl ether)	91-20-3	Liquid									79	>480	>480		>480	>480	>480	>480	>480	
											Naphthalene	91-20-3	Solid										>480	>480	>480						



Chemical Permeation Data Tables

C	l	a	s	S	u	b	C	l	a	s	Chemical Name	CAS	P	h	a	s	Breakthrough Time (Minutes)									
																	Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000
294 Aliphatic and Alicyclic, Unsaturated																										
Crude oil (>95%)												8002-05-9	Liquid				imm.	>480					>480	>480	>480	>480
296 Polyenes																										
Butadiene, 1,3- (>95%, gas)												106-99-0	Vapor				imm.	>480	>480	>480	>480	>480	>480	>480	>480	>480
Butadiene, 1,3- (>95%, liquid, 0° C)												106-99-0	Liquid											>180		
Cyclooctadiene (>95%)												1552-12-1	Liquid					>480								
d-Limonene (>95%)												5989-27-5	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	
300 Peroxides																										
300 Peroxides - All																										
Hydrogen peroxide (30%)												7722-84-1	Liquid				>480	>480					>480	>480		
Hydrogen peroxide (50%)												7722-84-1	Liquid				>480		>480	>480	>480					
Hydrogen peroxide (70%)												7722-84-1	Liquid			>480	>480			>480		>480	>480	>480	>480	
310 Hydroxylic Compounds (includes alcohols)																										
311 Aliphatic and Alicyclic, Primary																										
2-(2-Butoxyethoxy)-ethanol (>95%)												112-34-5	Liquid							>480						
Allyl alcohol (>95%)												107-18-6	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	>480
Aminoethylethanolamine (60%)												111-41-1	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	>480
Aminoethylethanolamine (>95%)												111-41-1	Liquid					imm.	>480	>480	>480	>480	>480	>480	>480	>480
Butanol, n- (>95%)												71-36-3	Liquid				imm.	>480	>480	>480	>480	>480	>480	>480	>480	>480
Ethanolamine (>95%)												141-43-5	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	>480
Ethyl alcohol (>95%)												64-17-5	Liquid	imm				>480	>480		>480		>480			
Mercaptoethanol (>95%)												60-24-2	Liquid						>480	>480					>480	
Methanol (>95%)												67-56-1	Liquid				imm.	>480	imm.	117	>480	185	>480	>480	>480	>480
Methyl Cellosolve® (>95%)												109-86-4	Liquid					>480	405	>480	>480	>480	>480	>480	>480	>480
Pentanol, n- (>95%)												71-41-0	Liquid					>480	>480	>480	>480					
Propargyl alcohol (>95%)												107-19-7	Liquid						123	123				>480		
312 Aliphatic and Alicyclic,Secondary																										
Benzyl alcohol (>95%)												100-51-6	Liquid					>480		>480			>480			
Isoamyl alcohol (>95%)												123-51-3	Liquid					>480				>480				
Isopropyl alcohol (70%)												67-63-0	Liquid	imm			imm.	>480		>480						
Isopropyl alcohol (>95%)												67-63-0	Liquid	imm			imm.	>480	>480	>480	>480	>480	>480	>480	>480	
313 Aliphatic and Alicyclic, Tertiary																										
Acetone cyanohydrin (>95%)												75-86-5	Liquid						>480	>480	>480	>480	>480	>480	>480	
Butanol tert. (>95%)												75-65-0	Liquid							205						
314 Aliphatic and Alicyclic, Polyols																										
Chloro-1,2-propanediol, 3- (>95%)												96-24-2	Liquid								>480	>480	>480	>480	>480	
Ethylene glycol (>95%)												107-21-1	Liquid	imm			>480	>480		>480	>480	>480	>480	>480	>480	
315 Aliphatic and Alicyclic, Substituted																										
Chloroethanol, 2- (>95%)												107-07-3	Liquid				imm.	>480	>480	>480	>480	>480	>480	>480	>480	

Chemical Permeation Data Tables

C	l	a	s	S ub - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)									
								Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000
					Trichloroethanol, 2,2,2- (>95%)	115-20-8	Liquid				>480	>480	>480	>480	>480	>480	>480
					Trifluoroethanol, 2,2,2- (>95%)	75-89-8	Liquid			imm.				>480	>480	>480	>480
316 Aromatic, Phenols																	
					Chlorophenol, 4- (sat. sol. in mathanol)	106-48-9	Liquid							>480	>480	>480	>480
					Creosote (>95%)	8001-58-9	Liquid					>480	>480				
					Cresol, mixed isomers (>95%)	1319-77-3	Liquid			40*	100	>480		>480	>480	>480	>480
					Cresol, o- (>95%)	95-48-7	Liquid			37	>480	330	180	180		>480	
					Dinitrocresol (sat. sol. in methanol)	534-52-1	Liquid							>480	>480	>480	>480
					Nitrophenol, o- (>95% at 70° C)	88-75-5	Liquid				imm.			208	208	208	208
					Nitrophenol, p- (>95% at 60° C)	100-02-7	Liquid				imm.				imm.		
					Pentachlorophenol (sat. sol. in methanol)	87-86-5	Liquid							>480	>480	>480	>480
					Pentachlorophenol (5% in Kerosene)	87-86-5	Liquid										
					Phenol (>95% at 45° C)	108-95-2	Liquid				44	17	25	25	101	101	>480
					Phenol (85% at 45° C)	108-95-2	Liquid							113	149	>480	>480
					Phenol (85%)	108-95-2	Liquid			imm.	>480	341	>480	>480	>480	>480	>480
					Phenol (>95% at 60° C)	108-95-2	Liquid				imm.	imm.		25		125	87
					Tetrachloro-bisphenol -A, 2,2',6,6'	79-95-8	Solid						>480	>480			
					m-Cresol 55%, p-Cresol 30%, Phenol 15% (>95%)	mixture	Liquid							>480	>480	>480	>480
318 Aromatic, Others																	
					Phenethyl alcohol, 2- (>95%)	60-12-8	Liquid					>480					
					Phenylethanol, 1- (>95%)	98-85-1	Liquid				>480	>480	>480		>480	>480	>480
330 Elements																	
330 Elements - All																	
					Bromine (>95%)	7726-95-6	Liquid				imm.		imm.	imm.	imm.	imm.	15
					Bromine (>95%, 10 g/m² coverage)	7726-95-6	Liquid									>480	
					Bromine (sat. vapor)	7726-95-6	Vapor									40	
					Chlorine (>95%, gas)	7782-50-5	Vapor				imm.	>480	imm.	>480	>480	>480	>480
					Chlorine (gas, 20 ppm)	7782-50-5	Vapor				>480*						
					Chlorine (>95%, liquid, -70° C)	7782-50-5	Liquid					>480				>480	>480
					Iodine (5% in carbon tetrachloride)	7553-56-2	Liquid					>480			>480		
					Iodine	7553-56-2	Solid				>420*, **						
					Mercury (>95%)	7439-97-6	Liquid				>480	>480	>480	>480	>480	>480	>480
340 Inorganic Salts and Inorganic Salt Solutions																	
340 Inorganic Salts and Inorganic Salt Solutions - All																	
					Ammonium Bifluoride (saturated solution)	1341-49-7	Liquid						>480				
					Ammonium chloride (sat. sol. in water)	12125-02-9	Liquid					>480					
					Ammonium fluoride (40%)	12125-01-8	Liquid							>480	>480	>480	>480
					Arsenic trichloride (>95%)	7784-34-1	Liquid						38	38			
					Ferric chloride (50% w/w in water)	7705-08-0	Liquid				>480				>480		



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Chemical Permeation Data Tables

C	l	a	s	S	u	b	C	l	a	s	Chemical Name	CAS	P	h	a	s	Breakthrough Time (Minutes)										
																	Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
											Fluoroboric acid (>95%)	16872-11-0	Liquid														
											Fluoroboric acid (48-50%)	16872-11-0	Liquid														
											Fluorosilicic acid (>95%)	16961-83-4	Liquid														
											Fluorosulfonic acid (>95%)	7789-21-1	Liquid														
											Hydriodic acid (55-57%)	10034-85-2	Liquid														
											Hydriodic acid (47%)	10034-85-2	Liquid														
											Hydrobromic acid (48-49%)	10035-10-6	Liquid														
											Hydrochloric acid (37%)	7647-01-0	Liquid				140										
											Hydrochloric acid (32%)	7647-01-0	Liquid	imm													
											Hydrochloric acid (10%)	7647-01-0	Liquid														
											Hydrochloric acid (16%)	7647-01-0	Liquid	imm													
											Hydrofluoric acid (48-51%)	7664-39-3	Liquid				400	400									
											Hydrofluoric acid (70%)	7664-39-3	Liquid							143	126	35					
											Hydrofluoric acid (60%)	7664-39-3	Liquid								52						
											Hydrofluoric acid (10%)	7664-39-3	Liquid	imm													
											Hydrogen bromide (>95%, gas)	10035-10-6	Vapor														
											Hydrogen cyanide (>95%, gas)	74-90-8	Vapor							30							
											Hydrogen cyanide (>95%, liquid, 21° C)	74-90-8	Liquid														
											Hydrogen fluoride (>95%, gas)	7664-39-3	Vapor				imm.	35	170	imm.	imm.	135	135				
											Hypophosphorus acid (50%)	6303-21-5	Liquid														
											Nitric acid (50%)	7697-37-2	Liquid														
											Nitric acid (70%)	7697-37-2	Liquid				203	>480	>480								
											Nitric acid (23%)	7697-37-2	Liquid														
											Nitric acid (90%)	7697-37-2	Liquid														
											Nitric acid, red fuming (>95%)	52583-42-3	Liquid														
											Oleum (65% free SO3)	8014-95-7	Liquid							15	248						
											Oleum (103% (13% free SO3))	8014-95-7	Liquid					230									
											Oleum (40% free SO3)	8014-95-7	Liquid						398*		468						
											Oleum (20% free SO3)	8014-95-7	Liquid														
											Oleum (30% free SO3)	8014-95-7	Liquid														
											Perchloric acid (70%)	7601-90-3	Liquid														
											Phosphoric acid (85%)	7664-38-2	Liquid														
											Phosphoric acid (50%)	7664-38-2	Liquid														
											Sulfamic acid (15%)	5329-14-6	Liquid														
											Sulfuric acid (50%)	7664-93-9	Liquid														
											Sulfuric acid (47%)	7664-93-9	Liquid														
											Sulfuric acid (30%)	7664-93-9	Liquid														
											Sulfuric acid (18%)	7664-93-9	Liquid														
											Sulfuric acid (70%)	7664-93-9	Liquid														

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)											
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR	
		Sulfuric acid (>95%)	7664-93-9	Liquid		>480	>480	>480	>480	>480	50	>480	>480	>480	>480	
380 Inorganic Bases																
380 Inorganic Bases - All																
		Ammonia (>95%, gas)	7664-41-7	Vapor	gas			imm.	26	imm.	20	90	133	133	>480	>480
		Ammonia (>95%, liquid, < -35°C)	7664-41-7	Liquid						>480		>480			>480	>480
		Ammonium hydroxide (28%-30%)	1336-21-6	Liquid			imm.	>480	89	>480	35	160	>480	>480	>480	>480
		Ammonium hydroxide (16%)	1336-21-6	Liquid	imm											
		Ammonium hydroxide (2-3% in household cleaner)	1336-21-6	Liquid				>480			>480		>480			
		Lithium hydroxide (14.9%)	1310-65-2	Liquid			>480	>480								
		Potassium hydroxide (45%)	1310-58-3	Liquid			>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
		Sodium hydroxide (10%)	1310-73-2	Liquid	>480											
		Sodium hydroxide (40%)	1310-73-2	Liquid												
		Sodium hydroxide (50%)	1310-73-2	Liquid	48		>480	>480	>480	>480	>480	>480	>480	>480	>480	>480
390 Ketones																
390 Ketones - All																
		Diketene Acetone (>95%)	5394-63-8	Liquid							>480					
391 Aliphatic and Alicyclic																
		Acetone (>95%)	67-64-1	Liquid				imm.	imm.	>480	>480	>480	>480	>480	>480	>480
		Chloroacetone (>95%)	78-95-5	Liquid					258	>480	>480	>480		258		
		Cyclohexanone (>95%)	108-94-1	Liquid					136		>480	>480	>480	>480	>480	>480
		Dichloroacetone (>95% at 40° C)	534-07-6	Liquid											>480	
		Dichloroacetone (>95% at 45° C)	534-07-6	Liquid							>480	>480				
		Hexone (>95%)	108-10-1	Liquid						>480	>480	>480	>480	>480	>480	>480
		Mesityl oxide (>95%)	141-79-7	Liquid						>480						
		Methyl ethyl ketone (>95%)	78-93-3	Liquid					18	>480	71	71	>480	>480	>480	>480
		Trichloroacetone, 1,1,3- (>95%)	921-03-9	Liquid							>480	>480				
430 Nitriles																
431 Aliphatic and Alicyclic																
		Acetone cyanohydrin (>95%)	75-86-5	Liquid							>480	>480	>480	>480	>480	>480
		Acetonitrile (>95%)	75-05-8	Liquid				imm.	60	imm.	>480	>480	>480	>480	>480	>480
		Acrylonitrile (>95%, 10 g/m² coverage)	107-13-1	Liquid									>480	>480	>480	>480
		Acrylonitrile (>95%)	107-13-1	Liquid				imm.	48	13	12	12	>480	>480	>480	>480
		Adiponitrile (>95%)	111-69-3	Liquid						>480	>480	>480	>480	>480	>480	>480
		Chloroacrylonitrile, 2- (>95%)	920-37-6	Liquid							>480	>480				
		Methyl-1,5-pentantenedinitrile, 2- (87%)	4553-62-2	Liquid									>480	>480		
		Methyl-1,5-pentantenedinitrile, 2- (>95%)	4553-62-2	Liquid							>480	>480				
		Pentenitrile, 2- (>95%)	13284-42-9	Liquid							>480	>480				
		Pentenitrile, 3- (>95%)	4635-87-4	Liquid									>480	>480	>480	>480
		cis-2-Pentenitrile (70%)	25899-50-7	Liquid									>480	>480	>480	>480

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)									
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000
432 Aromatic														
		Benzonitrile (>95%)	100-47-0	Liquid					450	>480	>480	>480	>480	>480
		Benzyl cyanide (>95%)	140-29-4	Liquid					>390	>390	>390			
440 Nitro Compounds														
441 Unsubstituted														
		Nitrobenzene (>95%)	98-95-3	Liquid			imm.	57	>480	>480	>480	>480	>480	>480
		Nitromethane (>95%)	75-52-5	Liquid						229	229	>480	>480	>480
		Nitropropane, 2- (>95%)	79-46-9	Liquid					>480	>480	>480	>480	>480	>480
442 Substituted														
		Dinitrocresol (sat. sol. in methanol)	534-52-1	Liquid								>480	>480	>480
		Nitrochlorobenzene, o-	88-73-3	Solid			15							
		Nitrochlorobenzene, p-	100-00-5	Solid			imm.							
		Nitrophenol, o- (>95% at 70° C)	88-75-5	Liquid				imm.			208	208	208	208
		Nitrophenol, p- (>95% at 60° C)	100-02-7	Liquid				imm.				imm.		
		Nitrotoluene, o- (>95%)	88-72-2	Liquid				95				95		
		Nitrotoluene, p-	99-99-0	Solid			imm.							
450 Nitroso Compounds														
450 Nitroso Compounds - All														
		Dimethyl nitrosamine (>95%)	62-75-9	Liquid						>480	>480			
460 Organo-Phosphorus Compounds														
462 Derivatives of Phosphorus-based acids														
		Ethyl parathion (>95%)	56-38-2	Liquid								>480	>480	>480
		Malathion (>95%)	121-75-5	Liquid								>480	>480	>480
		Malathion (50% in water)	121-75-5	Liquid				>480				>480		
		Malathion (50% in methanol)	121-75-5	Liquid							>480	>480	>480	>480
		Sarin (>95%, 100 g/m² coverage)	107-44-8	Liquid					>480	>480	>480	>480	>480	>480
		Sarin (>95%, 10 g/m² coverage)	107-44-8	Liquid			>480	120			>480	>480	>480	>480
		Skydrol® (>95%)	95660-51-8	Liquid			>480							
		Soman (>95%, 10 g/m² coverage)	96-64-0	Liquid				>480			>480	>480	>480	>480
		Soman (>95%, 100 g/m² coverage)	96-64-0	Liquid					>480	>480			>480	
		Tabun (>95%, 100 g/m² coverage)	77-81-6	Liquid					>480	>480			>480	
		Tabun (>95%, 10 g/m² coverage)	77-81-6	Liquid							>480	>480	>480	>480
		Trimethyl phosphate (>95%)	512-56-1	Liquid							>480	>480	>480	>480
		Trimethyl phosphite (>95%)	121-45-9	Liquid				210			>480	>480	>480	>480
		VX Nerve agent (>95%, 100 g/m² coverage)	50782-69-9	Liquid					>480	>480	>480	>480	>480	>480
		VX Nerve agent (>95%, 10 g/m² coverage)	50782-69-9	Liquid			>480	>480			>480	>480	>480	>480
470 Organo-Metallic Compounds														
470 Organo-Metallic Compounds - All														
		Dimethyl mercury in decane (100 ppm)	593-74-8	Liquid							>480			

Chemical Permeation Data Tables

C	l	a	s	S ub - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)							
								Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000
	Lewisite (>95%, 100 g/m² coverage)	541-25-3	Liquid							360	360	120	120	>480	120
	Lewisite (>95%, 10 g/m² coverage)	541-25-3	Liquid				>360	120				>480	>480	>480	>480
	Nickel carbonyl (>95%)	13463-39-3	Liquid											>480	
	Tetraethyl lead (>95%)	78-00-2	Liquid					>480				>480	>480	>480	>480
	Triethylaluminum (>95%)	97-93-8	Liquid												>480
	Vinylmagnesium chloride (16.5% in tetrahydrofuran)	3536-96-7	Liquid								>480	>480	>480	>480	>480
	Vinylmagnesium chloride (15% in tetrahydrofuran)	3536-96-7	Liquid				imm.								
480 Organo-Silicon Compounds															
480 Organo-Silicon Compounds - All															
Dichlorosilane (>95%)	4109-96-0	Vapor										>480	>480	>480	>480
Dimethyldichlorosilane (>95%)	75-78-5	Liquid					46		>480	>480		46	>480		
Hexamethyldisilazane (>95%)	999-97-3	Liquid				>480					>480	>480	>480	>480	>480
Methyl trichlorosilane (>95%)	75-79-6	Liquid							>480	>480	>480	>480	>480	>480	>480
Silane (>95%)	7803-62-5	Vapor										>480	>480	>480	>480
Silicon tetrachloride (>95%)	10026-04-7	Liquid				35	>480		>480	>480	>480	>480	>480	>480	>480
Tetraethoxysilane (>95%)	78-10-4	Liquid										>480	>480	>480	>480
Trichlorophenylsilane (>95%)	98-13-5	Liquid				>480			>480	>480		>480	>480		
Trichlorosilane (>95%)	10025-78-2	Liquid				60				>480	>480	>480	>480	>480	>480
Trichlorovinylsilane (>95%)	75-94-5	Liquid				100						100			
500 Sulfur Compounds															
501 Thiols															
Ethyl Mercaptan (>95%)	75-08-1	Liquid					imm.	>480	>480	>480	>480	>480	>480	>480	>480
Mercaptoethanol (>95%)	60-24-2	Liquid							>480	>480			>480		
Methyl mercaptan (>95%)	74-93-1	Vapor						>480	>480	>480	>480	>480	>480	>480	>480
Phenyl mercaptan (>95%)	108-98-5	Liquid											>480	>480	
Thioglycolic acid (>95%)	68-11-1	Liquid					>480	>480	>480	>480	>480	>480	>480	>480	>480
502 Sulfides and Disulfides															
Carbon disulfide (>95%)	75-15-0	Liquid				imm.	imm.	16	>480	>480	>480	>480	>480	>480	>480
Chlorine sulfide (>95%)	10545-99-0	Liquid											440		
Chlorine sulfide (80%)	10545-99-0	Liquid						imm.			70	70	>480	70	
Dimethyl sulfide (>95%)	75-18-3	Liquid							271	271					
Hydrogen sulfide (>95%)	7783-06-4	Vapor						imm.	>480	>480	>480	>480	>480	>480	>480
Sulfur monochloride (>95%)	10025-67-9	Liquid						210			>480	>480	>480	>480	>480
Sulfur mustard (>95%, 10 g/m² coverage)	505-60-2	Liquid				>480	120				>480	>480	>480	>480	>480
Sulfur mustard (>95%, 100 g/m² coverage)	505-60-2	Liquid							>480	>480	>480	>480	>480	>480	>480
503 Sulfoxones and Sulfoxides															
Dimethyl sulfoxide (>95%)	67-68-5	Liquid						>480	36	36	>480	>480	>480	>480	>480
504 Sulfonic Acids															
Chlorosulfonic acid (>95%)	7790-94-5	Liquid				>480	330	>480	17	180	>480	>480	>480	>480	180



Chemical Permeation Data Tables

Printed on October 18, 2018 Before relying on any performance data for the purchase or performance of products, you should check www.SafeSPEC.DuPont.com or contact DPP Customer Service at 1-800-931-3456 to determine whether there is new information that relates to your intended use or application of the product. page 24 of 43

Chemical Permeation Data Tables

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										
					Tyvek® 800J	Tychem® 2000 SFR	Tychem® 2000	Tychem® 4000	Tychem® 5000	Tychem® 6000	Tychem® 6000 FR	Tychem® 9000	Tychem® RESPONDER® CSM	Tychem® 10000	Tychem® 10000 FR
		Gemcitabine (38 mg/ml)	95058-81-4	Liquid											
		Ifosfamide (50 mg/ml)	3778-73-2	Liquid											
		Irinotecan (20 mg/ml)	100286-90-6	Liquid											
		Methotrexate (25 mg/ml, 0.1 N NaOH)	59-05-2	Liquid	>240										
		Mitomycin (0.5 mg/ml)	50-07-7	Liquid	>240										
		Oxaliplatin (5 mg/ml)	63121-00-6	Liquid											
		Paclitaxel (6 mg/ml, 49.7 % (v/v) Ethanol)	33069-62-4	Liquid			>240								
		Sodium chloride (9 g/l)	7647-14-5	Liquid											
		Thiotepa (10 mg/ml)	52-24-4	Liquid	>240***		>240***			>240***					
		Vincristine sulfate (1 mg/ml)	2068-78-2	Liquid											
		Vinorelbine (0.1 mg/ml)	71486-22-1	Liquid											
<div>> = greater than imm. = immediate (<10 minutes) {empty} = not tested L = Liquid G = Gas S = Solid</div> <div>* Actual breakthrough time; normalized breakthrough time is not available.</div> <div>** Solid tested, vapor phase permeation measured.</div>															

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Permeation data for Tyvek® Plus and Tyvek® Xpert

DuPont™ Tyvek® fabric provides an ideal balance of protection, durability and comfort. Tyvek® garments are composed of flash spun high density polyethylene fabric which creates a unique, nonwoven material available only from DuPont.

Tyvek® Plus and Tyvek® Xpert garments use a special type of Tyvek® fabric which has different physical properties and improved chemical resistance properties when compared to fabric used in standard Tyvek® garments.

Tyvek® Xpert garments have external sewn seams where the seam thread is visible on the outside of the garment. This seam design, when coupled with the enhanced fabric, offers improved overall garment protection levels. Tyvek® Xpert garments are CE certified to Types 5 & 6 (light liquid aerosols and airborne solid particles).

Tyvek® Plus garments have sewn seams which are over-taped. This seam design, when coupled with the enhanced fabric, offers further improved overall garment protection levels. Tyvek® Plus garments are CE certified to Types 4, 5 & 6 (light and heavy liquid aerosols and airborne solid particles).

NOTE

The permeation data provided in the following table only applies to Tyvek® Xpert and Tyvek® Plus garment fabrics.

Chemical Permeation Data Table

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)		
					Tyvek® 500	Tyvek® 600	Tyvek® 800J
100 Carboxylic acids							
102 Aliphatic and Alicyclic, Unsubstituted							
		Acetic acid (30%)	64-19-7	Liquid	imm	imm	imm
380 Inorganic Bases							
380 Inorganic Bases - All							
		Ammonium hydroxide (16%)	1336-21-6	Liquid	imm	imm	imm
		Ammonium hydroxide (28%-30%)	1336-21-6	Liquid	imm	imm	
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Carboplatin (10 mg/ml)	441575-94-4	Liquid		>240	
		Carmustine (3.3 mg/ml, 10 % Ethanol)	154-93-8	Liquid		imm	>240***
		Cisplatin (1 mg/ml)	15663-27-1	Liquid		>240	>240
		Cyclophosphamide (20mg/ml)	50-18-0	Liquid		>240	>240
500 Sulfur Compounds							
507 Sulfonates, Sulfates,and Sulfites							
		Dimethyl sulfate (>95%)	77-78-1	Liquid	imm	imm	
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Doxorubicin HCl (2 mg/ml)	25136-40-9	Liquid		>240	>240
310 Hydroxylic Compounds (includes alcohols)							
314 Aliphatic and Alicyclic, Polyols							
		Ethylene glycol (>95%)	107-21-1	Liquid	imm	imm	imm
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Etoposide (20 mg/ml, 33.2 % (v/v) Ethanol)	33419-42-0	Liquid		>240	
		Fluorouracil, 5- (50 mg/ml, 1 N NH3OH)	51-21-8	Liquid		imm	>240
100 Carboxylic acids							
102 Aliphatic and Alicyclic, Unsubstituted							
		Formic acid (30%)	64-18-6	Liquid	imm	imm	

Chemical Permeation Data Table

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)		
					Tyvek® 500	Tyvek® 600	Tyvek® 800J
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Ganciclovir (3 mg/ml)	82410-32-0	Liquid		>240	
		Gemcitabine (38 mg/ml)	95058-81-4	Liquid		<60***	
370 Inorganic Acids							
370 Inorganic Acids - All							
		Hydrochloric acid (32%)	7647-01-0	Liquid	imm	imm	imm
		Hydrochloric acid (16%)	7647-01-0	Liquid	imm	imm	imm
300 Peroxides							
300 Peroxides - All							
		Hydrogen peroxide (30%)	7722-84-1	Liquid	imm	imm	
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Ifosfamide (50 mg/ml)	3778-73-2	Liquid		>240	
		Irinotecan (20 mg/ml)	100286-90-6	Liquid		>240***	
		Methotrexate (25 mg/ml, 0.1 N NaOH)	59-05-2	Liquid		>240	>240
		Mitomycin (0.5 mg/ml)	50-07-7	Liquid		>240	>240
		Oxaliplatin (5 mg/ml)	63121-00-6	Liquid		imm	
		Paclitaxel (6 mg/ml, 49.7 % (v/v) Ethanol)	33069-62-4	Liquid		>240	
370 Inorganic Acids							
370 Inorganic Acids - All							
		Phosphoric acid (50%)	7664-38-2	Liquid	>480	>480	
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Sodium chloride (9 g/l)	7647-14-5	Liquid		>240	
380 Inorganic Bases							
380 Inorganic Bases - All							
		Sodium hydroxide (40%)	1310-73-2	Liquid	>480	>480	
370 Inorganic Acids							

Chemical Permeation Data Table

C l a s s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)		
					Tyvek® 500	Tyvek® 600	Tyvek® 800J
370 Inorganic Acids - All							
		Sulfuric acid (18%)	7664-93-9	Liquid	>480	>480	
		Sulfuric acid (30%)	7664-93-9	Liquid		>240	>480
990 Cytostatic drugs (Active Pharmaceutical Potent Compound)							
990 Cytostatic drugs (Active Pharmaceutical Potent Compound) - All							
		Thiotepa (10 mg/ml)	52-24-4	Liquid		imm	>240***
		Vincristine sulfate (1 mg/ml)	2068-78-2	Liquid		>240	
		Vinorelbine (0.1 mg/ml)	71486-22-1	Liquid		>240	
<div>> = greater than imm. = immediate (<10 minutes) {empty} = not tested L = Liquid G = Gas S = Solid</div> <div>* Actual breakthrough time; normalized breakthrough time is not available.</div> <div>** Solid tested, vapor phase permeation measured.</div>							



APPENDIX

CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
111-90-0	(2-Ethoxyethoxy)-ethanol, 2-		240	245	501-53-1	Benzyl chloroformate		110	113
112-34-5	2-(2-Butoxyethoxy)-ethanol	Butyl Carbitol, DEG Monobutyl Ether, Diethylene Glycol Monobutyl Ether	240 / 310	245 / 311	140-29-4	Benzyl cyanide		430	432
75-07-0	Acetaldehyde		120	121	7440-41-7	Beryllium		sol	sol1
64-19-7	Acetic acid		100	102	1675-54-3	Bisphenol-A diglycidyl ether		270	275
108-24-7	Acetic anhydride		160	161	308074-23-9	Black liquor		590	590
67-64-1	Acetone		390	391	110-51-0	Borane-pyridine complex		590	590
75-86-5	Acetone cyanohydrin		310 / 430	313 / 431	10294-34-5	Boron trichloride		350 / 360	350 / 360
75-05-8	Acetonitrile		430	431	7637-07-2	Boron trifluoride		350 / 360	350 / 360
75-36-5	Acetyl chloride		110	111	353-42-4	Boron trifluoride dimethyletherate		590	590
107-02-8	Acrolein		120	121	109-63-7	Boron trifluoride etherate		590	590
79-06-1	Acrylamide		130	135	7726-95-6	Bromine		330	330
79-10-7	Acrylic acid		100	102	74-97-5	Bromochloromethane		260	261
107-13-1	Acrylonitrile		430	431	460-00-4	Bromofluorobenzene, 4-		260	263
814-68-6	Acryloyl Chloride	Acrylic Acid Chloride	110	111	106-99-0	Butadiene, 1,3-	1,3-Butadiene	290	296
111-69-3	Adiponitrile		430	431	75-65-0	Butanol tert.	2-methyl 2-propanol	310	313
191681-14-8	AFFF		590	590	71-36-3	Butanol, n-		310	311
107-18-6	Allyl alcohol		310	311	123-86-4	Butyl acetate, n-		220	222
107-05-1	Allyl chloride		260	265	141-32-2	Butyl acrylate, n-		220	223
17927-65-0	Aluminum sulfate hydrate		340	340	111-76-2	Butyl Cellosolve®		240	245
92-67-1	Aminodiphenyl, 4-		140	145	142-96-1	Butyl ether, n-		240	241
111-41-1	Aminoethylethanolamine	N-Aminoethyl ethanolamine	140 / 310	148 / 311	109-73-9	Butylamine, n-	1-Aminobutane, Aminobutane, 1-, Butan-1-amine	140	141
140-31-8	Aminoethylpiperazine		140 / 270	148 / 274	75-64-9	Butylamine, tert-	tert-Butylamine	140	141
504-29-0	Aminopyridine, 2-		270	271	106-88-7	Butylene oxide, 1,2-		270	275
7664-41-7	Ammonia	Anhydrous ammonia	350 / 380	350 / 380	123-72-8	Butyraldehyde, n-	Butanal	120	121
1341-49-7	Ammonium Bifluoride	Ammonium Hydrofluoride, Ammonium Hydrogen Difluoride	340	340	107-92-6	Butyric acid		100	102
12125-02-9	Ammonium chloride		340	340	10043-52-4	Calcium chloride		340	340
12125-01-8	Ammonium fluoride		340	340	75-15-0	Carbon disulfide		500	502
1336-21-6	Ammonium hydroxide		380	380	630-08-0	Carbon monoxide		350	350
628-63-7	Amyl acetate, n-		220	222	56-23-5	Carbon tetrachloride		260	261
62-53-3	Aniline		140	145	441575-94-4	Carboplatin		990	990
461-82-5	Aniline, 4-trifluoromethoxy		140 / 240	145 / 242	154-93-8	Carmustine		990	990
120-12-7	Anthracene		290	293	mixture	Chemidize 727 ND		590	590
7647-18-9	Antimony pentachloride		360	360	57-74-9	Chlordane		260	261
7784-34-1	Arsenic trichloride		340	340	7782-50-5	Chlorine		330 / 350	330 / 350
7784-42-1	Arsine		350	350	10049-04-4	Chlorine dioxide		350	350
1332-21-4	Asbestos (all forms)		sol	sol1	10545-99-0	Chlorine sulfide	Sulfur dichloride	500	502
mixture	Astromat Orange			590	7790-91-2	Chlorine trifluoride		350	350
71-43-2	Benzene		290	292	96-24-2	Chloro-1,2-propanediol, 3-		310	314
98-09-9	Benzene sulfonyl chloride		500	505	126-99-8	Chloro-1,3-butadiene, 2-		260	264
92-87-5	Benzidine		140	145 / 149	98-56-6	Chloro-benzotrifluoride, 4-		260	263
100-47-0	Benzonitrile		430	432	79-11-8	Chloroacetic acid		100	103
98-07-7	Benzotrichloride		260	263	78-95-5	Chloroacetone		390	391
98-88-4	Benzoyl chloride		110	112	532-27-4	Chloroacetophenone		260	261
100-51-6	Benzyl alcohol		310	312	79-04-9	Chloroacetyl chloride		110	111
100-44-7	Benzyl chloride		260	266	920-37-6	Chloroacrylonitrile, 2-		260 / 430	264 / 431

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CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
106-47-8	Chloroaniline, p-	Chloroaniline, 4-	140	145	mixture	Diesel automotive test fuel		290	291
108-90-7	Chlorobenzene		260	263	68334-30-5	Diesel fuel		290	291
5216-25-1	Chlorobenzotrithloride, 4-		260	263	111-42-2	Diethanolamine		140	142
107-07-3	Chloroethanol, 2-		260 / 310	261 / 315	64-67-5	Diethyl sulfate		500	507
67-66-3	Chloroform		260	261	91-67-8	Diethyl-m-toluidine crude		140	145
107-30-2	Chloromethyl methyl ether		240	241	109-89-7	Diethylamine		140	142
106-48-9	Chlorophenol, 4-		260 / 310	263 / 316	91-66-7	Diethylaniline		140	146
76-06-2	Chloropicrin		260	261	91-66-7	Diethylaniline crude		140	146
7790-94-5	Chlorosulfonic acid		370 / 500	370 / 504	25340-17-4	Diethylbenzene		290	290
95-49-8	Chlorotoluene, o-		260	263	111-40-0	Diethylenetriamine		140	148
1333-82-0	Chromic acid		370	370	117-81-7	Diethylhexyl phthalate		220	226
25899-50-7	cis-2-Pentenitrile		430	431	755-95-3	Diiodo-1,1,2,2-tetrafluorobutane, 1,4-		260	261
15663-27-1	Cisplatin		990	990	7087-68-5	Diisopropylethylamine (DIPEA)	DIPEA (Diisopropylethylamine)	140	141
77-92-9	Citric acid		100	104	5394-63-8	Diketene Acetone		220 / 240 / 270 / 390	223 / 244 / 278 / 390
8001-58-9	Creosote		310	316	624-92-0	Dimethyl disulfide		500	502
1319-77-3	Cresol, mixed isomers		310	316	115-10-6	Dimethyl ether		240	241
95-48-7	Cresol, o-		310	316	593-74-8	Dimethyl mercury in decane		470	470
8002-05-9	Crude oil		290	294	62-75-9	Dimethyl nitrosamine		450	450
mixture	Crude oil on wildlife		liq	liq4	77-78-1	Dimethyl sulfate		500	507
98-82-8	Cumene		290	292	75-18-3	Dimethyl sulfide		500	502
506-77-4	Cyanogen chloride	CK (Cyanogen chloride)	340	345	67-68-5	Dimethyl sulfoxide		500	503
108-77-0	Cyanuric chloride		260	263	127-19-5	Dimethylacetamide, N,N-	DMAc, N,N-	130	132
110-82-7	Cyclohexane		290	291	124-40-3	Dimethylamine		140	142
108-94-1	Cyclohexanone		390	391	121-69-7	Dimethylaniline, N,N-		140	146
3173-53-3	Cyclohexyl isocyanate		210	211	75-78-5	Dimethyldichlorosilane		480	480
108-91-8	Cyclohexylamine		140	141	68-12-2	Dimethylformamide, N,N-	N,N-Dimethylformamide	130	132
1552-12-1	Cyclooctadiene		290	296	57-14-7	Dimethylhydrazine, 1,1-		280	280
50-18-0	Cyclophosphamide		990	990	624-48-6	Dimethylmaleate		220	224
5989-27-5	d-Limonene		290	296	534-52-1	Dinitrocresol		310 / 440	316 / 442
mixture	Decontaminating agent (DS-2)		590	590	123-91-1	Dioxane, 1,4-		270	278
19287-45-7	Diborane		350	350	101-68-8	Diphenylmethane Diisocyanate 4,4-	Methylene diphenyl isocyanate	210	212
96-12-8	Dibromo-3-chloropropane, 1,2-		260	261	8004-13-5	Dowtherm heat transfer fluid		590	590
764-41-0	Dichloro-2-butene, 1,4-		260	264	25136-40-9	Doxorubicin HCl		990	990
30894-74-7	Dichloro-6-isopropyl-S-triazine, 2,4-		270	274	mixture	DuPont Activator 193S		590	590
534-07-6	Dichloroacetone		260 / 390	261 / 391	mixture	DuPont Activator 4505S		590	590
79-36-7	Dichloroacetyl chloride		110	111	mixture	DuPont Activator 4507S		590	590
95-76-1	Dichloroaniline, 3,4-		140 / 260	145 / 263	15520-10-2	Dytek® A		140	148
95-50-1	Dichlorobenzene, 1,2-		260	263	106-89-8	Epichlorohydrin		260 / 270	261 / 275
541-73-1	Dichlorobenzene, 1,3-		260	263	141-43-5	Ethanolamine		140 / 310	141 / 311
106-46-7	Dichlorobenzene, 1,4-	Dichlorobenzene, 1,4-	260	263	141-78-6	Ethyl acetate		220	222
111-44-4	Dichloroethyl ether		240 / 260	241 / 261	140-88-5	Ethyl acrylate		220	223
75-09-2	Dichloromethane	Methylene chloride	260	261	64-17-5	Ethyl alcohol	Ethanol, Ethyl hydroxide	310	311
542-75-6	Dichloropropene, 1,3-		260	261	100-41-4	Ethyl benzene		290	292
78-88-6	Dichloropropene, 2,3-	Dichloropropene, 2,3-	260	261	110-80-5	Ethyl Cellosolve®		240	245
4109-96-0	Dichlorosilane		480	480	111-15-9	Ethyl Cellosolve® acetate		240	245

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CAS Number	Chemical Name	Synonym	Class	Sub-Class
75-00-3	Ethyl chloride		260	261
60-29-7	Ethyl ether		240	241
75-08-1	Ethyl Mercaptan	Ethanethiol	500	501
97-63-2	Ethyl methacrylate		220	223
56-38-2	Ethyl parathion		460	462
109-92-2	Ethyl vinyl ether		240 / 260	246 / 261
75-04-7	Ethylamine		140	141
74-85-1	Ethylene		290	294
106-93-4	Ethylene dibromide		260	261
107-06-2	Ethylene dichloride	1,2-Dichloroethane	260	261
107-21-1	Ethylene glycol		310	314
818-61-1	Ethylene glycol acrylate		220	223
75-21-8	Ethylene oxide	Dimethylene oxide, Epoxyethane	270	275
mixture	Ethylene oxide mixture		270	275
107-15-3	Ethylenediamine		140	148
151-56-4	Ethyleneimine		270	274
33419-42-0	Etoposide	Toposar®	990	990
7705-08-0	Ferric chloride	Iron trichloride, Iron(III) chloride	340	340
7758-94-3	Ferrous chloride	Iron (II) chloride, Iron dichloride	340	340
7782-41-4	Fluorine		350	350
462-06-6	Fluorobenzene		260	263
16872-11-0	Fluoroboric acid		370	370
16961-83-4	Fluorosilicic acid		370	370
7789-21-1	Fluorosulfonic acid		370	370
51-21-8	Fluorouracil, 5-		990	990
50-00-0	Formaldehyde		120	121
mixture	Formalin	Formalin	120	121
64-18-6	Formic acid		100	102
68476-30-2	Fuel oil		290	291
98-01-1	Furfural		120 / 270	122 / 277
96-48-0	gamma Butyrolactone			225
82410-32-0	Ganciclovir		990	990
86290-81-5	Gasoline		290	291
308066-70-8	Gasoline, E-10		290	291
95058-81-4	Gemcitabine		990	990
111-30-8	Glutaraldehyde	1,5-Pentanedial, Glutaric acid dialdehyde, Glutaric aldehyde, Gluteraldehyde, Pentanedial, 1,5-	120	121
79-14-1	Glycolic acid		100	103
68131-30-6	Green liquor		590	590
142-82-5	Heptane		290	291
87-68-3	Hexachlorobutadiene		260	264
77-47-4	Hexachlorocyclopentadiene		260	264
76-16-4	Hexafluoroethane		260	261
382-10-5	Hexafluoroisobutylene		260	261
999-97-3	Hexamethyldisilazane	Hexamethyldisilazane	140 / 480	142 / 480
822-06-0	Hexamethylene diisocyanate		210	211

CAS Number	Chemical Name	Synonym	Class	Sub-Class
mixture	Hexamethylene diisocyanate in DuPont Activator 193S		210	211
mixture	Hexamethylene diisocyanate in DuPont Activator 4505S		210	211
mixture	Hexamethylene diisocyanate in DuPont Activator 4507S		210	211
124-09-4	Hexamethylenediamine, 1,6-		140	148
110-54-3	Hexane, n-	n-Hexane	290	291
592-41-6	Hexene, 1-		290	294
108-10-1	Hexone	MIBK (Methyl isobutyl ketone), Methyl isobutyl ketone	390	391
302-01-2	Hydrazine		280	280
10217-52-4	Hydrazine hydrate		280	280
10034-85-2	Hydriodic acid		370	370
10035-10-6	Hydrobromic acid		370	370
7647-01-0	Hydrochloric acid	Muriatic acid	370	370
7664-39-3	Hydrofluoric acid		370	370
10035-10-6	Hydrogen bromide		350 / 370	350 / 370
7647-01-0	Hydrogen chloride		350	350
74-90-8	Hydrogen cyanide	HCN (Hydrogen cyanide), Hydrocyanic acid	340 / 350 / 370	345 / 350 / 370
7664-39-3	Hydrogen fluoride		350 / 370	350 / 370
7722-84-1	Hydrogen peroxide		300	300
7783-07-5	Hydrogen selenide		350	350
7783-06-4	Hydrogen sulfide		350 / 500	350 / 502
6303-21-5	Hypophosphorus acid		370	370
3778-73-2	Ifosfamide		990	990
7553-56-2	Iodine		330	330
100286-90-6	Irinotecan		990	990
123-51-3	Isoamyl alcohol		310	312
75-28-5	Isobutane		290	291
78-83-1	Isobutanol		310	311
538-93-2	Isobutylbenzene		290	292
4098-71-9	Isophorone diisocyanate		210	211
78-79-5	Isoprene		290	296
67-63-0	Isopropyl alcohol	IPA (Isopropyl alcohol), Isopropanol	310	312
75-31-0	Isopropylamine		140	141
50815-00-4	JP-4 jet fuel		290	291
94114-58-6	JP-8 jet fuel		290	291
8008-20-6	Kerosene	Jet A fuel	290	291
7439-92-1	Lead		sol	sol1
541-25-3	Lewisite		470	470
mixture	Lime		sol	sol1
58-89-9	Lindane		260	261
7447-41-8	Lithium chloride		340	340
1310-65-2	Lithium hydroxide		380	380
mixture	m-Cresol 55%, p-Cresol 30%, Phenol 15%		310	316
121-75-5	Malathion		460	462
110-16-7	Maleic acid		100	104
108-31-6	Maleic anhydride		160	161

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CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
60-24-2	Mercaptoethanol		310 / 500	311 / 501	91-20-3	Naphthalene		290	293
7487-94-7	Mercuric chloride		340	340	91-20-3	Naphthalene		290	293
7439-97-6	Mercury		330	330	13463-39-3	Nickel carbonyl		470	470
141-79-7	Mesityl oxide		390	391	54-11-5	Nicotine		270	271
79-41-4	Methacrylic acid		100	102	7697-37-2	Nitric acid		370	370
74-82-8	Methane		290	291	52583-42-3	Nitric acid, red fuming		370	370
124-63-0	Methane sulfonyl chloride		500	505	10102-43-9	Nitric oxide		350	350
75-75-2	Methanesulfonic acid		500	504	98-95-3	Nitrobenzene		440	441
67-56-1	Methanol		310	311	88-73-3	Nitrochlorobenzene, o-	260 / 440	263 / 442	
16752-77-5	Methomyl		230	233	100-00-5	Nitrochlorobenzene, p-	260 / 440	263 / 442	
59-05-2	Methotrexate		990	990	10102-44-0	Nitrogen dioxide		350	350
96-33-3	Methyl acrylate		220	223	10544-72-6	Nitrogen tetroxide		350	350
74-83-9	Methyl bromide		260	261	7783-54-2	Nitrogen trifluoride		350	350
109-86-4	Methyl Cellosolve®		240 / 310	245 / 311	75-52-5	Nitromethane		440	441
110-49-6	Methyl Cellosolve® acetate		240	245	88-75-5	Nitrophenol, o-	310 / 440	316 / 442	
74-87-3	Methyl chloride		260	261	100-02-7	Nitrophenol, p-	310 / 440	316 / 442	
79-22-1	Methyl chloroformate		110	113	79-46-9	Nitropropane, 2-		440	441
78-93-3	Methyl ethyl ketone	MEK (Methyl ethyl ketone)	390	391	88-72-2	Nitrotoluene, o-		440	442
96-29-7	Methyl ethyl ketoxime		150	150	99-99-0	Nitrotoluene, p-		440	442
593-53-3	Methyl fluoride		260	261	10024-97-2	Nitrous oxide		350	350
107-31-3	Methyl formate		220	221	112-20-9	Nonylamine		140	141
60-34-4	Methyl hydrazine		280	280	6143-29-9	Norbornene-2-yl acetate, 5-		220	222
74-88-4	Methyl iodide		260	261	111-65-9	Octane, n-		290	291
624-83-9	Methyl isocyanate		210	211	8014-95-7	Oleum		370	370
74-93-1	Methyl mercaptan		500	501	mixture	Organo-Tin Paint		470	470
80-62-6	Methyl methacrylate		220	223	106602-80-6	Otto fuel II		590	590
298-00-0	Methyl parathion		460	462	144-62-7	Oxalic acid		100	104
119-36-8	Methyl salicylate		220	226	63121-00-6	Oxaliplatin		990	990
1634-04-4	Methyl tert-butyl ether		240	241	33069-62-4	Paclitaxel	Taxol	990	990
75-79-6	Methyl trichlorosilane		480	480	104-49-4	Paraphenylene diisocyanate (PPDI) crude		210	212
4553-62-2	Methyl-1,5-pentantedinitrile, 2-	Methylglutaronitrile, 2-	430	431	mixture	PCB	Polychlorinated biphenyl	260	263
872-50-4	Methyl-2-pyrrolidone, N-		130	132	mixture	PCB 1254	Polychlorinated biphenyl 1254	260	263
74-89-5	Methylamine		140	141	11097-69-1	PCB 1254	Polychlorinated biphenyl 1254	260	263
103-67-3	Methylbenzylamine	Benzyl (Methyl) amine	140	142	mixture	PCB gas condensate		260	263
101-14-4	Methylene bis (o-chloroaniline), 4,4'-		140	149	mixture	PCB in transformer oil		260	263
1761-71-3	Methylene bis-cyclohexane diamine, 4,4'-		140	148	87-86-5	Pentachlorophenol		310	316
74-95-3	Methylene bromide		260	261	71-41-0	Pentanol, n-		310	311
101-77-9	Methylene dianiline, 4,4'-		140	145 / 149	13284-42-9	Pentenitrile, 2-		430	431
123-39-7	Methylformamide, N-		130	132	4635-87-4	Pentenitrile, 3-		430	431
8012-95-1	Mineral oil		290	291	7601-90-3	Perchloric acid		370	370
64475-85-0	Mineral spirits		290	291	2062-98-8	Perfluoro-2-propoxy propionyl fluoride	2-(Hepta Fluoro Propoxy) Tetra Fluoro Propionyl Fluoride, HFPO Dimer	110 / 240 / 260	110 / 240 / 260
50-07-7	Mitomycin		990	990	60-12-8	Phenethyl alcohol, 2-		310	318
110-91-8	Morpholine		140	142	108-95-2	Phenol		310	316
3887-02-3	N-Methylmethacrylamide	Methylmethacrylamide, N-	130	135	122-60-1	Phenyl glycidyl ether		270	275
109-02-4	N-Methylmorpholine (NMM)	NMM (N-Methylmorpholine)	140	142	108-98-5	Phenyl mercaptan		500	501

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CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
98-85-1	Phenylethanol, 1-		310	318	5329-14-6	Sulfamic acid		370 / 500	370 / 509
75-44-5	Phosgene		350	350	7791-25-5	Sulfonyl chloride		350 / 360	350 / 360
7803-51-2	Phosphine		350	350	7446-09-5	Sulfur dioxide		350 / 360	350 / 365
7664-38-2	Phosphoric acid		370	370	2551-62-4	Sulfur hexafluoride		350 / 500	350 / 509
10025-87-3	Phosphorus oxychloride		360	360	10025-67-9	Sulfur monochloride	Disulfur dichloride, Sulfur chloride	500	502
7719-12-2	Phosphorus trichloride		360	360	505-60-2	Sulfur mustard		500	502
109-06-8	Picoline, 2-		270	271	7446-11-9	Sulfur trioxide		360	365
108-99-6	Picoline, 3-		270	271	7664-93-9	Sulfuric acid		370	370
24991-55-7	Polyethylene glycol dimethyl ether	Selexol	240	245	mixture	t-Sodium-amylate / t-amyl alcohol		590	590
9016-87-9	Polymethylene polyphenyl-polyisocyanate		210	212	77-81-6	Tabun		460	462
127-08-2	Potassium acetate		340	340	75-65-0	tert-Butyl alcohol	Butyl alcohol, tert-	310	313
584-08-7	Potassium carbonate		340	340	79-27-6	Tetrabromoethane		260	261
7789-00-6	Potassium chromate		340	340	79-95-8	Tetrachloro-bisphenol -A, 2,2',6,6'	Tetrachloro-bisphenol -A, 2,2',6,6'	260 / 310	263 / 316
151-50-8	Potassium cyanide		340	345	79-34-5	Tetrachloroethane, 1,1,2,2-		260	261
1310-58-3	Potassium hydroxide	Caustic potash, KOH (Potassium hydroxide), Potash lye	380	380	127-18-4	Tetrachloroethylene, 1,1,2,2-	1,1,2,2-Tetrachloroethylene	260	264
7722-64-7	Potassium permanganate		340	340	78-10-4	Tetraethoxysilane		480	480
74-98-6	Propane		290	291	77-98-5	Tetraethyl Ammonium Hydroxide	Tetraethylammonium hydroxide; N,N,N,	550	550
107-19-7	Propargyl alcohol	2-Propyn-1-ol, Propyn-1-ol, 2-	310	311	78-00-2	Tetraethyl lead		470	470
123-38-6	Propionaldehyde		120	121	112-57-2	Tetraethylenepentamine		140	148
79-09-4	Propionic acid		100	102	811-97-2	Tetrafluoroethane, 1,1,1,2-		260	261
107-10-8	Propylamine, n-		140	141	75-73-0	Tetrafluoromethane		260	261
106-94-5	Propylbromide, n-	1-Bromopropane, 1-Propyl bromide, Bromopropane, 1-, Propyl bromide, 1-, n-Propylbromide	260	261	109-99-9	Tetrahydrofuran		240	241
78-87-5	Propylene dichloride		260	261	529-34-0	Tetralone		290	292
75-55-8	Propylene imine		270	274	75-59-2	Tetramethylammonium hydroxide		550	550
75-56-9	Propylene oxide, 1,2-		270	275	5076-20-0	Tetramethylethylene oxide		270	275
110-86-1	Pyridine		270	271	110-18-9	Tetramethylethylenediamine (TMEDA)	TMEDA (Tetramethylethylenediamine)	140	148
123-75-1	Pyrrolidine		270	274	mixture	Tetramethyltin		590	590
107-44-8	Sarin		460	462	68-11-1	Thioglycolic acid		100 / 500	103 / 501
7803-62-5	Silane		480	480	7719-09-7	Thionyl chloride		360	360
10026-04-7	Silicon tetrachloride		360 / 480	360 / 480	52-24-4	Thiotepa		990	990
95660-51-8	Skydrol®		460	462	7550-45-0	Titanium tetrachloride		360	360
7647-14-5	Sodium chloride		990	990	108-88-3	Toluene		290	292
143-33-9	Sodium cyanide		340	345	26471-62-5	Toluene-1,3-diisocyanate		210	212
10588-01-9	Sodium dichromate		340	340	584-84-9	Toluene-2,4-diisocyanate		210	212
7681-49-4	Sodium fluoride		340	340	108-44-1	Toluidine, m-		140	145
16721-80-5	Sodium hydrosulfide		340	340	95-53-4	Toluidine, o-		140	145
1310-73-2	Sodium hydroxide	Caustic soda, Lye, NaOH (Sodium hydroxide)	380	380 / 591 / 592	156-60-5	trans-1,2-Dichloroethylene		260	264
7681-52-9	Sodium hypochlorite		340	340	110-57-6	trans-1,4-Dichloro-2-butene		260	264
7681-57-4	Sodium metabisulfite	Sodium disulfite, Sodium pyrosulfite	340	340	123-73-9	trans-Crotonaldehyde		120	121
124-41-4	Sodium methylate		550	550	118-79-6	Tribromophenol, 2,4,6-	Tribromophenol, 2,4,6-	310	316
6834-92-0	Sodium silicate		340	340	102-82-9	Tributylamine		140	143
1313-82-2	Sodium sulfide	Disodium sulfide	340	340	76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1,1,2-Trichloro-1,2,2-trifluoroethane	260	261
96-64-0	Soman		460	462	76-03-9	Trichloroacetic acid		100	103
8052-41-3	Stoddard solvent		290	291	921-03-9	Trichloroacetone, 1,1,3-		260 / 390	261 / 391
100-42-5	Styrene		290	292	120-82-1	Trichlorobenzene, 1,2,4-		260	263

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CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
71-55-6	Trichloroethane, 1,1,1-		260	261
79-00-5	Trichloroethane, 1,1,2-		260	261
115-20-8	Trichloroethanol, 2,2,2-		310	315
79-01-6	Trichloroethylene		260	264
98-13-5	Trichlorophenylsilane		480	480
10025-78-2	Trichlorosilane		480	480
75-94-5	Trichlorovinylsilane		480	480
998-30-1	Triethoxysilane		480	480
97-93-8	Triethylaluminum		470	470
121-44-8	Triethylamine		140	143
112-24-3	Triethylenetetramine			
76-05-1	Trifluoroacetic acid		100 / 260	103 / 261
354-32-5	Trifluoroacetyl chloride		110	111
75-89-8	Trifluoroethanol, 2,2,2-		310	315
75-46-7	Trifluoromethane		260	261
1493-13-6	Trifluoromethane sulfonic acid		500	504
512-56-1	Trimethyl phosphate		460	462
121-45-9	Trimethyl phosphite		460	462
75-50-3	Trimethylamine		140	143
526-73-8	Trimethylbenzene, 1,2,3-		290	292
101-02-0	Triphenyl phosphite		460	462
102-69-2	Tripropylamine		140	143
7783-82-6	Tungsten hexafluoride		350	350
8006-64-2	Turpentine		290	294
7632-51-1	Vanadium tetrachloride		360	360
2068-78-2	Vincristine sulfate		990	990
71486-22-1	Vinorelbine		990	990
108-05-4	Vinyl acetate		220	222
593-60-2	Vinyl bromide		260	264
75-01-4	Vinyl chloride		260	264
75-35-4	Vinylidene chloride	Dichloroethylene, 1,1-	260	264
3536-96-7	Vinylmagnesium chloride		470	470
100-43-6	Vinylpyridine, 4-		270	271
8030-30-6	VM&P Naphtha		290	291
50782-69-9	VX Nerve agent		460	462
68131-33-9	White liquor		590	590
1330-20-7	Xylene, mixed isomers		290	292
95-47-6	Xylene, o-		290	292
95-68-1	Xylidin, 2,4-		140	145

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CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
50-00-0	Formaldehyde		120	121	75-01-4	Vinyl chloride		260	264
50-07-7	Mitomycin		990	990	75-04-7	Ethylamine		140	141
50-18-0	Cyclophosphamide		990	990	75-05-8	Acetonitrile		430	431
51-21-8	Fluorouracil, 5-		990	990	75-07-0	Acetaldehyde		120	121
52-24-4	Thiotepa		990	990	75-08-1	Ethyl Mercaptan	Ethanethiol	500	501
54-11-5	Nicotine		270	271	75-09-2	Dichloromethane	Methylene chloride	260	261
56-23-5	Carbon tetrachloride		260	261	75-15-0	Carbon disulfide		500	502
56-38-2	Ethyl parathion		460	462	75-18-3	Dimethyl sulfide		500	502
57-14-7	Dimethylhydrazine, 1,1-		280	280	75-21-8	Ethylene oxide	Dimethylene oxide, Epoxyethane	270	275
57-74-9	Chlordane		260	261	75-28-5	Isobutane		290	291
58-89-9	Lindane		260	261	75-31-0	Isopropylamine		140	141
59-05-2	Methotrexate		990	990	75-35-4	Vinylidene chloride	Dichloroethylene, 1,1-	260	264
60-12-8	Phenethyl alcohol, 2-		310	318	75-36-5	Acetyl chloride		110	111
60-24-2	Mercaptoethanol		310 / 500	311 / 501	75-44-5	Phosgene		350	350
60-29-7	Ethyl ether		240	241	75-46-7	Trifluoromethane		260	261
60-34-4	Methyl hydrazine		280	280	75-50-3	Trimethylamine		140	143
62-53-3	Aniline		140	145	75-52-5	Nitromethane		440	441
62-75-9	Dimethyl nitrosamine		450	450	75-55-8	Propylene imine		270	274
64-17-5	Ethyl alcohol	Ethanol, Ethyl hydroxide	310	311	75-56-9	Propylene oxide, 1,2-		270	275
64-18-6	Formic acid		100	102	75-59-2	Tetramethylammonium hydroxide		550	550
64-19-7	Acetic acid		100	102	75-64-9	Butylamine, tert-	tert-Butylamine	140	141
64-67-5	Diethyl sulfate		500	507	75-65-0	Butanol tert.	2-methyl 2-propanol	310	313
67-56-1	Methanol		310	311	75-65-0	tert-Butyl alcohol	Butyl alcohol, tert-	310	313
67-63-0	Isopropyl alcohol	IPA (Isopropyl alcohol), Isopropanol	310	312	75-73-0	Tetrafluoromethane		260	261
67-64-1	Acetone		390	391	75-75-2	Methanesulfonic acid		500	504
67-66-3	Chloroform		260	261	75-78-5	Dimethyldichlorosilane		480	480
67-68-5	Dimethyl sulfoxide		500	503	75-79-6	Methyl trichlorosilane		480	480
68-11-1	Thioglycolic acid		100 / 500	103 / 501	75-86-5	Acetone cyanohydrin		310 / 430	313 / 431
68-12-2	Dimethylformamide, N,N-	N,N-Dimethylformamide	130	132	75-89-8	Trifluoroethanol, 2,2,2-		310	315
71-36-3	Butanol, n-		310	311	75-94-5	Trichlorovinylsilane		480	480
71-41-0	Pentanol, n-		310	311	76-03-9	Trichloroacetic acid		100	103
71-43-2	Benzene		290	292	76-05-1	Trifluoroacetic acid		100 / 260	103 / 261
71-55-6	Trichloroethane, 1,1,1-		260	261	76-06-2	Chloropicrin		260	261
74-82-8	Methane		290	291	76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1,1,2-Trichloro-1,2,2-trifluoroethane	260	261
74-83-9	Methyl bromide		260	261	76-16-4	Hexafluoroethane		260	261
74-85-1	Ethylene		290	294	77-47-4	Hexachlorocyclopentadiene		260	264
74-87-3	Methyl chloride		260	261	77-78-1	Dimethyl sulfate		500	507
74-88-4	Methyl iodide		260	261	77-81-6	Tabun		460	462
74-89-5	Methylamine		140	141	77-92-9	Citric acid		100	104
74-90-8	Hydrogen cyanide	HCN (Hydrogen cyanide), Hydrocyanic acid	340 / 350 / 370	345 / 350 / 370	77-98-5	Tetraethyl Ammonium Hydroxide	Tetraethylammonium hydroxide; N,N,N,	550	550
74-93-1	Methyl mercaptan		500	501	78-00-2	Tetraethyl lead		470	470
74-95-3	Methylene bromide		260	261	78-10-4	Tetraethoxysilane		480	480
74-97-5	Bromochloromethane		260	261	78-79-5	Isoprene		290	296
74-98-6	Propane		290	291	78-83-1	Isobutanol		310	311
75-00-3	Ethyl chloride		260	261	78-87-5	Propylene dichloride		260	261

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CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
78-88-6	Dichloropropene, 2,3-	Dichloropropene,2,3-	260	261	97-93-8	Triethylaluminum		470	470
78-93-3	Methyl ethyl ketone	MEK (Methyl ethyl ketone)	390	391	98-01-1	Furfural		120 / 270	122 / 277
78-95-5	Chloroacetone		390	391	98-07-7	Benzotrichloride		260	263
79-00-5	Trichloroethane, 1,1,2-		260	261	98-09-9	Benzene sulfonyl chloride		500	505
79-01-6	Trichloroethylene		260	264	98-13-5	Trichlorophenylsilane		480	480
79-04-9	Chloroacetyl chloride		110	111	98-56-6	Chloro-benzotrifluoride, 4-		260	263
79-06-1	Acrylamide		130	135	98-82-8	Cumene		290	292
79-09-4	Propionic acid		100	102	98-85-1	Phenylethanol, 1-		310	318
79-10-7	Acrylic acid		100	102	98-88-4	Benzoyl chloride		110	112
79-11-8	Chloroacetic acid		100	103	98-95-3	Nitrobenzene		440	441
79-14-1	Glycolic acid		100	103	99-99-0	Nitrotoluene, p-		440	442
79-22-1	Methyl chloroformate		110	113	100-00-5	Nitrochlorobenzene, p-		260 / 440	263 / 442
79-27-6	Tetrabromoethane		260	261	100-02-7	Nitrophenol, p-		310 / 440	316 / 442
79-34-5	Tetrachloroethane, 1,1,2,2-		260	261	100-41-4	Ethyl benzene		290	292
79-36-7	Dichloroacetyl chloride		110	111	100-42-5	Styrene		290	292
79-41-4	Methacrylic acid		100	102	100-43-6	Vinylpyridine, 4-		270	271
79-46-9	Nitropropane, 2-		440	441	100-44-7	Benzyl chloride		260	266
79-95-8	Tetrachloro-bisphenol -A, 2,2',6,6'	Tetrachloro-bisphenol -A, 2,2',6,6'	260 / 310	263 / 316	100-47-0	Benzonitrile		430	432
80-62-6	Methyl methacrylate		220	223	100-51-6	Benzyl alcohol		310	312
87-68-3	Hexachlorobutadiene		260	264	101-02-0	Triphenyl phosphite		460	462
87-86-5	Pentachlorophenol		310	316	101-14-4	Methylene bis (o-chloroaniline), 4,4'-		140	149
88-72-2	Nitrotoluene, o-		440	442	101-68-8	Diphenylmethane Diisocyanate 4,4'-	Methylene diphenyl isocyanate	210	212
88-73-3	Nitrochlorobenzene, o-		260 / 440	263 / 442	101-77-9	Methylene dianiline, 4,4'-		140	145 / 149
88-75-5	Nitrophenol, o-		310 / 440	316 / 442	102-69-2	Tripropylamine		140	143
91-20-3	Naphthalene		290	293	102-82-9	Tributylamine		140	143
91-20-3	Naphthalene		290	293	103-67-3	Methylbenzylamine	Benzyl (Methyl) amine	140	142
91-66-7	Diethylaniline		140	146	104-49-4	Paraphenylene diisocyanate (PPDI) crude		210	212
91-66-7	Diethylaniline crude		140	146	106-46-7	Dichlorobenzene, 1,4	Dichlorobenzene, 1,4-	260	263
91-67-8	Diethyl-m-toluidine crude		140	145	106-47-8	Chloroaniline, p-	Chloroaniline, 4-	140	145
92-67-1	Aminodiphenyl, 4-		140	145	106-48-9	Chlorophenol, 4-		260 / 310	263 / 316
92-87-5	Benzidine		140	145 / 149	106-88-7	Butylene oxide, 1,2-		270	275
95-47-6	Xylene, o-		290	292	106-89-8	Epichlorohydrin		260 / 270	261 / 275
95-48-7	Cresol, o-		310	316	106-93-4	Ethylene dibromide		260	261
95-49-8	Chlorotoluene, o-		260	263	106-94-5	Propylbromide, n-	1-Bromopropane, 1-Propyl bromide, Bromopropane, 1-, Propyl bromide, 1-, n-Propylbromide	260	261
95-50-1	Dichlorobenzene, 1,2-		260	263	106-99-0	Butadiene, 1,3-	1,3-Butadiene	290	296
95-53-4	Toluidine, o-		140	145	107-02-8	Acrolein		120	121
95-68-1	Xylidin, 2,4-		140	145	107-05-1	Allyl chloride		260	265
95-76-1	Dichloroaniline, 3,4-		140 / 260	145 / 263	107-06-2	Ethylene dichloride	1,2-Dichloroethane	260	261
96-12-8	Dibromo-3-chloropropane, 1,2-		260	261	107-07-3	Chloroethanol, 2-		260 / 310	261 / 315
96-24-2	Chloro-1,2-propanediol, 3-		310	314	107-10-8	Propylamine, n-		140	141
96-29-7	Methyl ethyl ketoxime		150	150	107-13-1	Acrylonitrile		430	431
96-33-3	Methyl acrylate		220	223	107-15-3	Ethylenediamine		140	148
96-48-0	gamma Butyrolactone			225	107-18-6	Allyl alcohol		310	311
96-64-0	Soman		460	462	107-19-7	Propargyl alcohol	2-Propyn-1-ol, Propyn-1-ol, 2-	310	311
97-63-2	Ethyl methacrylate		220	223	107-21-1	Ethylene glycol		310	314



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CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
107-30-2	Chloromethyl methyl ether		240	241	112-20-9	Nonylamine		140	141
107-31-3	Methyl formate		220	221	112-24-3	Triethylenetetramine			
107-44-8	Sarin		460	462	112-34-5	2-(2-Butoxyethoxy)-ethanol	Butyl Carbitol, DEG Monobutyl Ether, Diethylene Glycol Monobutyl Ether	240 / 310	245 / 311
107-92-6	Butyric acid		100	102	112-57-2	Tetraethylenepentamine		140	148
108-05-4	Vinyl acetate		220	222	115-10-6	Dimethyl ether		240	241
108-10-1	Hexone	MIBK (Methyl isobutyl ketone), Methyl isobutyl ketone	390	391	115-20-8	Trichloroethanol, 2,2,2-		310	315
108-24-7	Acetic anhydride		160	161	117-81-7	Diethylhexyl phthalate		220	226
108-31-6	Maleic anhydride		160	161	118-79-6	Tribromophenol, 2,4,6-	Tribromophenol, 2,4,6-	310	316
108-44-1	Toluidine, m-		140	145	119-36-8	Methyl salicylate		220	226
108-77-0	Cyanuric chloride		260	263	120-12-7	Anthracene		290	293
108-88-3	Toluene		290	292	120-82-1	Trichlorobenzene, 1,2,4-		260	263
108-90-7	Chlorobenzene		260	263	121-44-8	Triethylamine		140	143
108-91-8	Cyclohexylamine		140	141	121-45-9	Trimethyl phosphite		460	462
108-94-1	Cyclohexanone		390	391	121-69-7	Dimethylaniline, N,N-		140	146
108-95-2	Phenol		310	316	121-75-5	Malathion		460	462
108-98-5	Phenyl mercaptan		500	501	122-60-1	Phenyl glycidyl ether		270	275
108-99-6	Picoline, 3-		270	271	123-38-6	Propionaldehyde		120	121
109-02-4	N-Methylmorpholine (NMM)	NMM (N-Methylmorpholine)	140	142	123-39-7	Methylformamide, N-		130	132
109-06-8	Picoline, 2-		270	271	123-51-3	Isoamyl alcohol		310	312
109-63-7	Boron trifluoride etherate		590	590	123-72-8	Butyraldehyde, n-	Butanal	120	121
109-73-9	Butylamine, n-	1-Aminobutane, Aminobutane, 1-, Butan-1-amine	140	141	123-73-9	trans-Crotonaldehyde		120	121
109-86-4	Methyl Cellosolve®		240 / 310	245 / 311	123-75-1	Pyrrolidine		270	274
109-89-7	Diethylamine		140	142	123-86-4	Butyl acetate, n-		220	222
109-92-2	Ethyl vinyl ether		240 / 260	246 / 261	123-91-1	Dioxane, 1,4-		270	278
109-99-9	Tetrahydrofuran		240	241	124-09-4	Hexamethylenediamine, 1,6-		140	148
110-16-7	Maleic acid		100	104	124-40-3	Dimethylamine		140	142
110-18-9	Tetramethylethylenediamine (TMEDA)	TMEDA (Tetramethylethylenediamine)	140	148	124-41-4	Sodium methylate		550	550
110-49-6	Methyl Cellosolve® acetate		240	245	124-63-0	Methane sulfonyl chloride		500	505
110-51-0	Borane-pyridine complex		590	590	126-99-8	Chloro-1,3-butadiene, 2-		260	264
110-54-3	Hexane, n-	n-Hexane	290	291	127-08-2	Potassium acetate		340	340
110-57-6	trans-1,4-Dichloro-2-butene		260	264	127-18-4	Tetrachloroethylene, 1,1,2,2-	1,1,2,2-Tetrachloroethylene	260	264
110-80-5	Ethyl Cellosolve®		240	245	127-19-5	Dimethylacetamide, N,N-	DMAc, N,N-	130	132
110-82-7	Cyclohexane		290	291	140-29-4	Benzyl cyanide		430	432
110-86-1	Pyridine		270	271	140-31-8	Aminoethylpiperazine		140 / 270	148 / 274
110-91-8	Morpholine		140	142	140-88-5	Ethyl acrylate		220	223
111-15-9	Ethyl Cellosolve® acetate		240	245	141-32-2	Butyl acrylate, n-		220	223
111-30-8	Glutaraldehyde	1,5-Pentanedial, Glutaric acid dialdehyde, Glutaric aldehyde, Gluteraldehyde, Pentanedial, 1,5-	120	121	141-43-5	Ethanolamine		140 / 310	141 / 311
111-40-0	Diethylenetriamine		140	148	141-78-6	Ethyl acetate		220	222
111-41-1	Aminoethylethanolamine	N-Aminoethyl ethanolamine	140 / 310	148 / 311	141-79-7	Mesityl oxide		390	391
111-42-2	Diethanolamine		140	142	142-82-5	Heptane		290	291
111-44-4	Dichloroethyl ether		240 / 260	241 / 261	142-96-1	Butyl ether, n-		240	241
111-65-9	Octane, n-		290	291	143-33-9	Sodium cyanide		340	345
111-69-3	Adiponitrile		430	431	144-62-7	Oxalic acid		100	104
111-76-2	Butyl Cellosolve®		240	245	151-50-8	Potassium cyanide		340	345
111-90-0	(2-Ethoxyethoxy)-ethanol, 2-		240	245	151-56-4	Ethyleneimine		270	274

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CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
154-93-8	Carmustine		990	990
156-60-5	trans-1,2-Dichloroethylene		260	264
298-00-0	Methyl parathion		460	462
302-01-2	Hydrazine		280	280
353-42-4	Boron trifluoride dimethyletherate		590	590
354-32-5	Trifluoroacetyl chloride		110	111
382-10-5	Hexafluoroisobutylene		260	261
460-00-4	Bromofluorobenzene, 4-		260	263
461-82-5	Aniline, 4-trifluoromethoxy		140 / 240	145 / 242
462-06-6	Fluorobenzene		260	263
501-53-1	Benzyl chloroformate		110	113
504-29-0	Aminopyridine, 2-		270	271
505-60-2	Sulfur mustard		500	502
506-77-4	Cyanogen chloride	CK (Cyanogen chloride)	340	345
512-56-1	Trimethyl phosphate		460	462
526-73-8	Trimethylbenzene, 1,2,3-		290	292
529-34-0	Tetralone		290	292
532-27-4	Chloroacetophenone		260	261
534-07-6	Dichloroacetone		260 / 390	261 / 391
534-52-1	Dinitrocresol		310 / 440	316 / 442
538-93-2	Isobutylbenzene		290	292
541-25-3	Lewisite		470	470
541-73-1	Dichlorobenzene, 1,3-		260	263
542-75-6	Dichloropropene, 1,3-		260	261
584-08-7	Potassium carbonate		340	340
584-84-9	Toluene-2,4-diisocyanate		210	212
592-41-6	Hexene, 1-		290	294
593-53-3	Methyl fluoride		260	261
593-60-2	Vinyl bromide		260	264
593-74-8	Dimethyl mercury in decane		470	470
624-48-6	Dimethylmaleate		220	224
624-83-9	Methyl isocyanate		210	211
624-92-0	Dimethyl disulfide		500	502
628-63-7	Amyl acetate, n-		220	222
630-08-0	Carbon monoxide		350	350
755-95-3	Diiodo-1,1,2,2-tetrafluorobutane, 1,4-		260	261
764-41-0	Dichloro-2-butene, 1,4-		260	264
811-97-2	Tetrafluoroethane, 1,1,1,2-		260	261
814-68-6	Acryloyl Chloride	Acrylic Acid Chloride	110	111
818-61-1	Ethylene glycol acrylate		220	223
822-06-0	Hexamethylene diisocyanate		210	211
872-50-4	Methyl-2-pyrrolidone, N-		130	132
920-37-6	Chloroacrylonitrile, 2-		260 / 430	264 / 431
921-03-9	Trichloroacetone, 1,1,3-		260 / 390	261 / 391
998-30-1	Triethoxysilane		480	480

CAS Number	Chemical Name	Synonym	Class	Sub-Class
999-97-3	Hexamethyldisilazane	Hexamethyldisilazane	140 / 480	142 / 480
1310-58-3	Potassium hydroxide	Caustic potash, KOH (Potassium hydroxide), Potash lye	380	380
1310-65-2	Lithium hydroxide		380	380
1310-73-2	Sodium hydroxide	Caustic soda, Lye, NaOH (Sodium hydroxide)	380	380 / 591 / 592
1313-82-2	Sodium sulfide	Disodium sulfide	340	340
1319-77-3	Cresol, mixed isomers		310	316
1330-20-7	Xylene, mixed isomers		290	292
1332-21-4	Asbestos (all forms)		sol	sol1
1333-82-0	Chromic acid		370	370
1336-21-6	Ammonium hydroxide		380	380
1341-49-7	Ammonium Bifluoride	Ammonium Hydrofluoride, Ammonium Hydrogen Difluoride	340	340
1493-13-6	Trifluoromethane sulfonic acid		500	504
1552-12-1	Cyclooctadiene		290	296
1634-04-4	Methyl tert-butyl ether		240	241
1675-54-3	Bisphenol-A diglycidyl ether		270	275
1761-71-3	Methylene bis-cyclohexane diamine, 4,4'-		140	148
2062-98-8	Perfluoro-2-propoxy propionyl fluoride	2-(Hepta Fluoro Propoxy) Tetra Fluoro Propionyl Fluoride, HFPO Dimer	110 / 240 / 260	110 / 240 / 260
2068-78-2	Vincristine sulfate		990	990
2551-62-4	Sulfur hexafluoride		350 / 500	350 / 509
3173-53-3	Cyclohexyl isocyanate		210	211
3536-96-7	Vinylmagnesium chloride		470	470
3778-73-2	Ifosfamide		990	990
3887-02-3	N-Methylmethacrylamide	Methylmethacrylamide, N-	130	135
4098-71-9	Isophorone diisocyanate		210	211
4109-96-0	Dichlorosilane		480	480
4553-62-2	Methyl-1,5-pentantenedinitrile, 2-	Methylglutaronitrile, 2-	430	431
4635-87-4	Pentenenitrile, 3-		430	431
5076-20-0	Tetramethylethylene oxide		270	275
5216-25-1	Chlorobenzotrifluoride, 4-		260	263
5329-14-6	Sulfamic acid		370 / 500	370 / 509
5394-63-8	Diketene Acetone		220 / 240 / 270 / 390	223 / 244 / 278 / 390
5989-27-5	d-Limonene		290	296
6143-29-9	Norbornene-2-yl acetate, 5-		220	222
6303-21-5	Hypophosphorus acid		370	370
6834-92-0	Sodium silicate		340	340
7087-68-5	Diisopropylethylamine (DIPEA)	DIPEA (Diisopropylethylamine)	140	141
7439-92-1	Lead		sol	sol1
7439-97-6	Mercury		330	330
7440-41-7	Beryllium		sol	sol1
7446-09-5	Sulfur dioxide		350 / 360	350 / 365
7446-11-9	Sulfur trioxide		360	365
7447-41-8	Lithium chloride		340	340
7487-94-7	Mercuric chloride		340	340
7550-45-0	Titanium tetrachloride		360	360
7553-56-2	Iodine		330	330

APPENDIX CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class	CAS Number	Chemical Name	Synonym	Class	Sub-Class
7601-90-3	Perchloric acid		370	370	8030-30-6	VM&P Naphtha		290	291
7632-51-1	Vanadium tetrachloride		360	360	8052-41-3	Stoddard solvent		290	291
7637-07-2	Boron trifluoride		350 / 360	350 / 360	9016-87-9	Polymethylene polyphenyl-polyisocyanate		210	212
7647-01-0	Hydrochloric acid	Muriatic acid	370	370	10024-97-2	Nitrous oxide		350	350
7647-01-0	Hydrogen chloride		350	350	10025-67-9	Sulfur monochloride	Disulfur dichloride, Sulfur chloride	500	502
7647-14-5	Sodium chloride		990	990	10025-78-2	Trichlorosilane		480	480
7647-18-9	Antimony pentachloride		360	360	10025-87-3	Phosphorus oxychloride		360	360
7664-38-2	Phosphoric acid		370	370	10026-04-7	Silicon tetrachloride		360 / 480	360 / 480
7664-39-3	Hydrofluoric acid		370	370	10034-85-2	Hydriodic acid		370	370
7664-39-3	Hydrogen fluoride		350 / 370	350 / 370	10035-10-6	Hydrobromic acid		370	370
7664-41-7	Ammonia	Anhydrous ammonia	350 / 380	350 / 380	10035-10-6	Hydrogen bromide		350 / 370	350 / 370
7664-93-9	Sulfuric acid		370	370	10043-52-4	Calcium chloride		340	340
7681-49-4	Sodium fluoride		340	340	10049-04-4	Chlorine dioxide		350	350
7681-52-9	Sodium hypochlorite		340	340	10102-43-9	Nitric oxide		350	350
7681-57-4	Sodium metabisulfite	Sodium disulfite, Sodium pyrosulfite	340	340	10102-44-0	Nitrogen dioxide		350	350
7697-37-2	Nitric acid		370	370	10217-52-4	Hydrazine hydrate		280	280
7705-08-0	Ferric chloride	Iron trichloride, Iron(III) chloride	340	340	10294-34-5	Boron trichloride		350 / 360	350 / 360
7719-09-7	Thionyl chloride		360	360	10544-72-6	Nitrogen tetroxide		350	350
7719-12-2	Phosphorus trichloride		360	360	10545-99-0	Chlorine sulfide	Sulfur dichloride	500	502
7722-64-7	Potassium permanganate		340	340	10588-01-9	Sodium dichromate		340	340
7722-84-1	Hydrogen peroxide		300	300	11097-69-1	PCB 1254	Polychlorinated biphenyl 1254	260	263
7726-95-6	Bromine		330	330	12125-01-8	Ammonium fluoride		340	340
7758-94-3	Ferrous chloride	Iron (II) chloride, Iron dichloride	340	340	12125-02-9	Ammonium chloride		340	340
7782-41-4	Fluorine		350	350	13284-42-9	Pentenenitrile, 2-		430	431
7782-50-5	Chlorine		330 / 350	330 / 350	13463-39-3	Nickel carbonyl		470	470
7783-06-4	Hydrogen sulfide		350 / 500	350 / 502	15520-10-2	Dytek® A		140	148
7783-07-5	Hydrogen selenide		350	350	15663-27-1	Cisplatin		990	990
7783-54-2	Nitrogen trifluoride		350	350	16721-80-5	Sodium hydrosulfide		340	340
7783-82-6	Tungsten hexafluoride		350	350	16752-77-5	Methomyl		230	233
7784-34-1	Arsenic trichloride		340	340	16872-11-0	Fluoroboric acid		370	370
7784-42-1	Arsine		350	350	16961-83-4	Fluorosilicic acid		370	370
7789-00-6	Potassium chromate		340	340	17927-65-0	Aluminum sulfate hydrate		340	340
7789-21-1	Fluorosulfonic acid		370	370	19287-45-7	Diborane		350	350
7790-91-2	Chlorine trifluoride		350	350	24991-55-7	Polyethylene glycol dimethyl ether	Selexol	240	245
7790-94-5	Chlorosulfonic acid		370 / 500	370 / 504	25136-40-9	Doxorubicin HCl		990	990
7791-25-5	Sulfonyl chloride		350 / 360	350 / 360	25340-17-4	Diethylbenzene		290	290
7803-51-2	Phosphine		350	350	25899-50-7	cis-2-Pentenenitrile		430	431
7803-62-5	Silane		480	480	26471-62-5	Toluene-1,3-diisocyanate		210	212
8001-58-9	Creosote		310	316	30894-74-7	Dichloro-6-isopropyl-S-triazine, 2,4-		270	274
8002-05-9	Crude oil		290	294	33069-62-4	Paclitaxel	Taxol	990	990
8004-13-5	Dowtherm heat transfer fluid		590	590	33419-42-0	Etoposide	Toposar®	990	990
8006-64-2	Turpentine		290	294	50782-69-9	VX Nerve agent		460	462
8008-20-6	Kerosene	Jet A fuel	290	291	50815-00-4	JP-4 jet fuel		290	291
8012-95-1	Mineral oil		290	291	52583-42-3	Nitric acid, red fuming		370	370
8014-95-7	Oleum		370	370	63121-00-6	Oxaliplatin		990	990

APPENDIX

CHEMICAL INDEX - Chemical Abstract System (CAS) Number - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
64475-85-0	Mineral spirits		290	291
68131-30-6	Green liquor		590	590
68131-33-9	White liquor		590	590
68334-30-5	Diesel fuel		290	291
68476-30-2	Fuel oil		290	291
71486-22-1	Vinorelbine		990	990
82410-32-0	Ganciclovir		990	990
86290-81-5	Gasoline		290	291
94114-58-6	JP-8 jet fuel		290	291
95058-81-4	Gemcitabine		990	990
95660-51-8	Skydrol®		460	462
100286-90-6	Irinotecan		990	990
106602-80-6	Otto fuel II		590	590
191681-14-8	AFFF		590	590
308066-70-8	Gasoline, E-10		290	291
308074-23-9	Black liquor		590	590
441575-94-4	Carboplatin		990	990
mixture	Astromat Orange			590
mixture	Chemidize 727 ND		590	590
mixture	Crude oil on wildlife		liq	liq4
mixture	Decontaminating agent (DS-2)		590	590
mixture	Diesel automotive test fuel		290	291
mixture	DuPont Activator 193S		590	590
mixture	DuPont Activator 4505S		590	590
mixture	DuPont Activator 4507S		590	590
mixture	Ethylene oxide mixture		270	275
mixture	Formalin	Formalin	120	121
mixture	Hexamethylene diisocyanate in DuPont Activator 193S		210	211
mixture	Hexamethylene diisocyanate in DuPont Activator 4505S		210	211
mixture	Hexamethylene diisocyanate in DuPont Activator 4507S		210	211
mixture	Lime		sol	sol1
mixture	Organo-Tin Paint		470	470
mixture	PCB	Polychlorinated biphenyl	260	263
mixture	PCB 1254	Polychlorinated biphenyl 1254	260	263
mixture	PCB gas condensate		260	263
mixture	PCB in transformer oil		260	263
mixture	Tetramethyltin		590	590
mixture	m-Cresol 55%, p-Cresol 30%, Phenol 15%		310	316
mixture	t-Sodium-amylate / t-amyl alcohol		590	590

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