

DuPont Permeation Guide



TABLE OF CONTENTS

• How to use this Permeation Guide	3
• Independent Testing	3
• What is Permeation?	3
• How Permeation Tests are Conducted	4
• Definitions of Terms	4
• Chemical Class and Subclass Listings	5
• ASTM F1001 List of 21 Challenge Chemicals Data Table	6
• Tychem® Chemical Permeation Data Table	8
• Tyvek® Fabric Information	50
• Tyvek® Chemical Permeation Data Table	51
• Appendix	
• Alphabetical Index	79
• CAS Number Index	101

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.

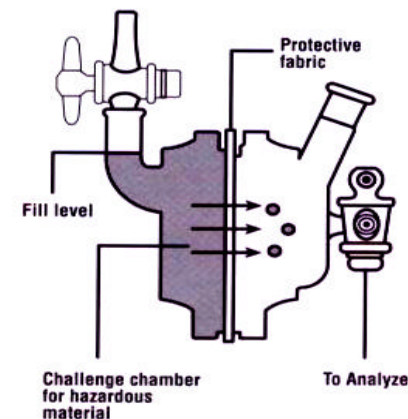
To help you understand the difference between these two mechanisms, consider this example. Have you ever opened a bottle of soda to find out that it was flat? There aren't any holes in the bottle. The liquid is still inside. Why is the soda flat? It's flat because the carbon dioxide that gives soda its 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 $\text{g}/\text{cm}^2/\text{min}$. 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 $\text{g}/\text{cm}^2/\text{min}$ 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 $\text{g}/\text{cm}^2/\text{min}$ during the 8 hour test. If the permeation rate exceeds 0.1 $\text{g}/\text{cm}^2/\text{min}$ 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 $\text{g}/\text{cm}^2/\text{min}$. This is 10 times less sensitive than the basis used in North America.

Physical phase: The phase of the challenge chemical during the test: 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 Hydroxlamines 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 245 Glycol Ethers 246 Vinyl 260 Halogen Compounds 261 Aliphatic and Alicyclic 263 Aromatic 264 Vinyl 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 301 Inorganic 302 Organic 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)
--	---	--

*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)									
				Tychem® 2000 SFR	Tychem® 2000	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000
100	Acetic acid (10%)	64-19-7	Liquid			imm							
130	Dimethyl formamide, N,N-	68-12-2	Liquid		imm		90	>480	>480	>480	>480	>480	>480
140	Diethyl amine	109-89-7	Liquid		imm		15	>480	>480	>480	>480	>480	>480
140	Ethyl ethanamine, N-	109-89-7	Liquid		imm		15	>480	>480	>480	>480	>480	>480
220	Acetic acid ethyl ester	141-78-6	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
220	Ethyl acetate	141-78-6	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
260	Dichloro methane	75-09-2	Liquid		imm		imm	imm	imm	imm	>480	>480	>480
260	Dichloro methane (10.000 ppm)	75-09-2	Vapor							52			
260	Dichloro methane (1000 ppm)	75-09-2	Vapor							>480			
260	Methyl chloride (gaseous)	74-87-3	Vapor		imm		>480	>480	>480	>480	>480	>480	>480
260	Methylene chloride	75-09-2	Liquid		imm		imm	imm	imm	imm	>480	>480	>480
260	Methylene chloride (10.000 ppm)	75-09-2	Vapor							52			
260	Methylene chloride (1000 ppm)	75-09-2	Vapor							>480			
260	Ethylene tetrachloride	127-18-4	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
260	Tetrachloro ethylene, 1,1,2,2-	127-18-4	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
270	Epoxy ethane (gaseous)	75-21-8	Vapor		imm		imm	12	>480	126	>480	>480	>480
270	Ethylene oxide (gaseous)	75-21-8	Vapor		imm		imm	12	>480	126	>480	>480	>480
270	Tetrahydrofuran	109-99-9	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
290	Hexane, n-	110-54-3	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
290	Methyl benzol	108-88-3	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
290	Toluene	108-88-3	Liquid		imm		imm	>480	>480	>480	>480	>480	>480
290	Butadiene, 1,3- (gaseous)	106-99-0	Vapor	imm	imm		>480	>480	>480	>480	>480	>480	>480
290	Vinyl ethylene (gaseous)	106-99-0	Vapor	imm	imm		>480	>480	>480	>480	>480	>480	>480
310	Methanol	67-56-1	Liquid		imm		>480	imm	117	117	>480	>480	>480
330	Chlorine (gaseous)	7782-50-5	Vapor		imm		>480	imm	>480	>480	>480	>480	>480
350	Ammonia (gaseous)	7664-41-7	Vapor	imm	imm		26	imm	90	20	105*/133	>480	>480
350	Chlorine (gaseous)	7782-50-5	Vapor		imm		>480	imm	>480	>480	>480	>480	>480
350	Hydrogen chloride (gaseous)	7647-01-0	Vapor		imm		>480	>480	>480	>480	>480	>480	>480
370	Hydrogen chloride (gaseous)	7647-01-0	Vapor		imm		>480	>480	>480	>480	>480	>480	>480
370	Sulfuric acid (>95%)	7664-93-9	Liquid	>480	>480		>480	>480	50	>480	>480	>480	>480
380	Ammonia (gaseous)	7664-41-7	Vapor	imm	imm		26	imm	90	20	105*/133	>480	>480
390	Acetone	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Dimethyl ketal	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Dimethyl ketone	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Ketone propane	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Methyl acetyl	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Methyl ketone	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Propan -2-one	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480
390	Pyroacetic ether	67-64-1	Liquid	imm	imm		13	462	>480	>480	>480	>480	>480

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

Sub-class	Chemical Name	CAS Number	Phase	Normalized Breakthrough Time (Minutes)									
				Tychem® 2000 SFR	Tychem® 2000	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000
430	Acetonitrile	75-05-8	Liquid	imm	imm		60	imm	>480	131	>480	>480	>480
430	Cyanomethane	75-05-8	Liquid	imm	imm		60	imm	>480	131	>480	>480	>480
430	Ethane nitrile	75-05-8	Liquid	imm	imm		60	imm	>480	131	>480	>480	>480
430	Ethyl nitrile	75-05-8	Liquid	imm	imm		60	imm	>480	131	>480	>480	>480
430	Methyl cyanide	75-05-8	Liquid	imm	imm		60	imm	>480	131	>480	>480	>480
440	Nitro benzene	98-95-3	Liquid		imm		59	>480	>480	>480	>480	>480	>480
500	Carbon disulfide	75-15-0	Liquid	imm	imm		imm	imm	>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	Breakthrough Time (Minutes)											
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000
100																												
102																												
Acetic acid (10%)												64-19-7	Liquid						imm									
Acetic acid (2%)												64-19-7	Liquid						imm									
Acetic acid (30%)												64-19-7	Liquid			imm	imm	imm										
Acetic acid (5%)												64-19-7	Liquid					imm										
Acetic acid (>95%)												64-19-7	Liquid			imm			>480	34	>480	>480	>480	>480	>480			
Acroleic acid												79-10-7	Liquid			imm			>480		>480	>480	>480	270	>480			
Acrylic acid												79-10-7	Liquid			imm			>480		>480	>480	>480	270	>480			
Butyric Acid												107-92-6	Liquid								>480							
Ethyl hexanoic acid												149-57-5	Liquid								>480							
Ethylene carboxylic acid												79-10-7	Liquid			imm			>480		>480	>480	>480	270	>480			
Formic acid (30%)												64-18-6	Liquid				imm	imm										
Formic acid (50%)												64-18-6	Liquid								>480	>480						
Formic acid (88%)												64-18-6	Liquid						>480									
Formic acid (>95%)												64-18-6	Liquid							>480	260	260	>480	>480	>480			
Methacrylic acid												79-41-4	Liquid							81	>480	>480	>480	>480	>480			
Methyl propenoic acid, 2-												79-41-4	Liquid							81	>480	>480	>480	>480	>480			
Propanoic acid												79-09-4	Liquid								>480							
Propene acid												79-10-7	Liquid			imm			>480		>480	>480	>480	270	>480			
103																												
Chloro acetic acid (80%)												79-11-8	Liquid			>480				>480	>480	>480	>480	>480	>480	>480		
Glycolic acid (sat)												79-14-1	Liquid									>480	>480	>480				
Hydroxy acetic acid (sat)												79-14-1	Liquid									>480	>480	>480				
Mercapto acetic acid												68-11-1	Liquid							>480	>480	>480	>480	>480	>480			
Thioglycolic acid												68-11-1	Liquid							>480	>480	>480	>480	>480	>480			
Trichloro acetic acid (sat)												76-03-9	Liquid								>480	>480						
Trifluoro acetic acid												76-05-1	Liquid						>480		>480	>480	>480					
104																												
Citric acid (50%)												77-92-9	Liquid							>480								
Citric acid (sat)												77-92-9	Liquid								>480	>480						
Ethane dioic acid (10.5%)												144-62-7	Liquid									>480	>480	>480				
Ethane dioic acid (sat)												144-62-7	Liquid						>480	>480	>480							
Hydroxy 1,2,3-propanetricarboxylic acid, 2-(50%)												77-92-9	Liquid							>480								
Hydroxy 1,2,3-																												

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																		propanetricarboxylic acid, 2-(sat)	77-92-9	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Chemical Permeation Data Tables

C	l	a	s	S u b - C l a s s		Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)											Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
									Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000						
						Acrolein	107-02-8	Liquid							25*/178	75*/101	75*/101	>480	>480	>480			
						Acrolein (10 g/m²)	107-02-8	Liquid								>480	>480						
						Acrolein (90%)	107-02-8	Liquid					24										
						Butanal, n-	123-72-8	Liquid			imm			41			>480	>480	>480	>480			
						Butenal, 2-	123-73-9	Liquid						34			147	>480	>480	>480			
						Butyraldehyde, n-	123-72-8	Liquid			imm			41			>480	>480	>480	>480			
						Croton aldehyde	123-73-9	Liquid						34			147	>480	>480	>480			
						Ethane diol dipropanoate, 1,2-	123-73-9	Liquid						34			147	>480	>480	>480			
						Formaldehyde (10%)	50-00-0	Liquid					imm										
						Formaldehyde (100 ppm)	50-00-0	Vapor										>480	>480	>480			
						Formaldehyde (37%)	50-00-0	Liquid					>480	>480	>480	>480							
						Formalin (10%)	50-00-0	Liquid					imm										
						Formalin (100 ppm)	50-00-0	Vapor										>480	>480	>480			
						Formalin (3.7%, 1-1.5% Methanol)	50-00-0	Liquid			>480												
						Formalin (37% (10-15% Methanol))	50-00-0	Liquid			imm			>480	>480	>480	>480	>480	>480	>480			
						Formalin (37%)	50-00-0	Liquid						>480	>480	>480	>480						
						Glutaral (5%)	111-30-8	Liquid			>480							>480	>480	>480			
						Glutaral (50%)	111-30-8	Liquid						>480			170	170	>480	>480	>480		
						Glutaraldehyde (5%)	111-30-8	Liquid			>480							>480	>480	>480			
						Glutaraldehyde (50%)	111-30-8	Liquid						>480			170	170	>480	>480	>480		
						Methyl acrolein	123-73-9	Liquid						34			147	>480	>480	>480			
						Pentanedial, 1,5- (5%)	111-30-8	Liquid			>480							>480	>480	>480			
						Pentanedial, 1,5- (50%)	111-30-8	Liquid						>480			170	170	>480	>480	>480		
						Prop-2-en-1-al	107-02-8	Liquid							25*/178	75*/101	75*/101	>480	>480	>480			
						Prop-2-en-1-al (10 g/m²)	107-02-8	Liquid									>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)										
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR
Prop-2-en-1-al (90%)												107-02-8	Liquid						24								
Propylene aldehyde												123-73-9	Liquid						34				147	>480	>480	>480	
122																											
Benzaldehyde												100-52-7	Liquid										>480				
130																											
132																											
Cyanamide (50%)												420-04-2	Liquid									nm					
Dimethyl acetamide, N,N-												127-19-5	Liquid	imm					96	>480	>480	>480	>480	>480	>480	>480	
Dimethyl acetamide, N,N- (8%)												127-19-5	Liquid	>480	>480												
Dimethyl formamide, N,N-												68-12-2	Liquid		imm			90	>480	>480	>480	>480	>480	>480	>480		
Methyl 2-pyrrolidon, N-												872-50-4	Liquid					101		>480	>480	>480	>480	>480	>480		
Methyl formamide, N-												123-39-7	Liquid						>480	>480	>480						
135																											
Acrylamide (50%)												79-06-1	Liquid					>480		>480	>480	>480	>480	>480	>480		
Acrylicamide (50%)												79-06-1	Liquid					>480		>480	>480	>480	>480	>480	>480		
Propenamide (50%)												79-06-1	Liquid					>480		>480	>480	>480	>480	>480	>480		
140																											
141																											
Amino ethanol, 2-												141-43-5	Liquid						>480	>480	>480	>480	>480	>480	>480		
Amino ethylpiperazine												140-31-8	Liquid					>480	>480	>480	>480	>480	>480	>480	>480		
Amino propane, 2-												75-31-0	Liquid						15	>480	>480	>480	>480	>480	>480		
Butyl amine												109-73-9	Liquid						>480	200	200	>480	>480	>480	>480		
Diisopropylethylamine (DIPEA)												7087-68-5	Liquid						>480	>480							
Ethanol amine												141-43-5	Liquid						>480	>480	>480	>480	>480	>480	>480		
Ethyl amine (15 °C, liquid)												75-04-7	Liquid									361	361	>480			
Isopropyl amine												75-31-0	Liquid						15	>480	>480	>480	>480	>480	>480		
Methyl amine (40%)												74-89-5	Liquid						140			261	261	261			
Methyl amine (50%)												74-89-5	Liquid								232	232	232				
Methyl amine (qaseous)												74-89-5	Vapor							>480	>480	105	105	>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)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS				
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® 6000					Tychem® 6000			
											Propyl amine, n-	107-10-8	Liquid										100	16*/21	16*/21									
											Tetraethylene pentamine	112-57-2	Liquid									>480	>480	>480	>480	>480	>480	>480						
											Triethylenetetramine (60%)	112-24-3	Liquid									>480	>480	>480	>480	>480	>480	>480						
142																																		
											Amino ethylethanolamine	111-41-1	Liquid									imm	>480	>480	>480	>480	>480	>480	>480					
											Amino ethylethanolamine (60%)	111-41-1	Liquid									>480	>480	>480	>480	>480	>480	>480	>480					
											Diethanolamine	111-42-2	Liquid										>480			>480								
											Diethyl amine	109-89-7	Liquid			imm						15	>480	>480	>480	>480	>480	>480	>480					
											Dimethyl amine	124-40-3	Vapor										>480	>480	>480				>480					
											Ethyl ethanamine, N-	109-89-7	Liquid			imm						15	>480	>480	>480	>480	>480	>480	>480					
143																																		
											Amino 2-methylpropane, 2-	75-64-9	Liquid														>480	>480	>480					
											Butyl amine, tert-	75-64-9	Liquid														>480	>480	>480					
											Diethyl ethanamine, N,N-	121-44-8	Liquid									12*/22		>480	>480	>480	>480	>480	>480	>480				
											Tributyl amine (95%)	102-82-9	Liquid										>480	>480	>480									
											Triethyl amine	121-44-8	Liquid									12*/22		>480	>480	>480	>480	>480	>480	>480				
											Trimethyl amine	75-50-3	Vapor																>480					
											Trimethyl aminomethane	75-64-9	Liquid														>480	>480	>480					
											Tripropyl amine	102-69-2	Liquid														>480	>480	>480					
145																																		
											Amino 3,4-dichlorobenzene, 1-	95-76-1	Solid														>480	>480	>480					
											Amino 3,4-dichlorobenzene, 1- (70 °C, molten)	95-76-1	Liquid									imm					216*/284	216*/284	216*/284					
											Amino benzene	62-53-3	Liquid			imm						>480	320	>480	>480	>480	>480	>480	>480	>480				
											Amino diphenyl, 4- (1 mg/ml in Methanol)	92-67-1	Liquid									>480	>480	>480	>480	>480			>480					
											Anilin, 4-Trifluoromethoxy-	461-82-5	Liquid											>480	>480									
											Aniline	62-53-3	Liquid			imm						>480	320	>480	>480	>480	>480	>480	>480	>480				
											Benzenamine	62-53-3	Liquid			imm						>480	320	>480	>480	>480	>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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
											Benzidine (25% in Methanol)	92-87-5	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</

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)																				
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS								
											Diethyl aniline crude	91-66-7	Liquid																								
											Diethyl aniline, N,N-	91-66-7	Liquid																								
											Dimethyl aniline, N,N-	121-69-7	Liquid																								
											Dimethyl phenylamine, N,N-	121-69-7	Liquid																								
											Methyl benzylamine, N-	103-67-3	Liquid																								
148																																					
											Amino ethylethanolamine	111-41-1	Liquid																								
											Amino ethylethanolamine (60%)	111-41-1	Liquid																								
											Amino ethylpiperazine	140-31-8	Liquid																								
											Diaminoethane, 1,2-	107-15-3	Liquid																								
											Diethylene triamine	111-40-0	Liquid																								
											Dytek® A	15520-10-2	Liquid																								
											Ethylene diamine	107-15-3	Liquid																								
											Hexamethylene diamine (45 °C, molten)	124-09-4	Liquid																								
											Hexamethylene diamine (50 °C, molten)	124-09-4	Liquid																								
											Methylen Isocyclohexylamine, 4,4- (40 °C)	1761-71-3	Liquid																								
											Methylen Isocyclohexylamine, 4,4- (50 °C, molten)	1761-71-3	Liquid																								
											Tetraethylene pentamine	112-57-2	Liquid																								
											Tetramethylethylene diamine (TMEDA)	110-18-9	Liquid																								
											Tributyl amine (95%)	102-82-9	Liquid																								
											Triethylenetetramine (60%)	112-24-3	Liquid																								
149																																					
											Benzidine (25% in Methanol)	92-87-5	Liquid																								
											Benzidine (75% in Methanol)	92-87-5	Liquid																								
											Biphenyl 4,4'-diamine, 1,1'- (25% in Methanol)	92-87-5	Liquid																								

Chemical Permeation Data Tables

C	l	a	s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000					
					Biphenyl 4,4'-diamine, 1,1'- (75% in Methanol)	92-87-5	Liquid											>480			
					Diaminobiphenyl, 4,4'- (25% in Methanol)	92-87-5	Liquid										>480	>480	>480		
					Diaminobiphenyl, 4,4'- (75% in Methanol)	92-87-5	Liquid												>480		
					Diaminodiphenyl, p- (25% in Methanol)	92-87-5	Liquid										>480	>480	>480		
					Diaminodiphenyl, p- (75% in Methanol)	92-87-5	Liquid												>480		
					Diaminodiphenylmethane, 4,4'-	101-77-9	Liquid												>480		
					Diaminodiphenylmethane, 4,4'- (15% in Methyl Ethyl Ketone)	101-77-9	Liquid										>480	>480	>480		
					Dichloro -4,4'-methylenedianiline, 2,2'- (sat in Methanol)	101-14-4	Liquid						>480				>480	>480	>480		
					Methylene bis(2-Chloroaniline), 4,4- (sat in Methanol)	101-14-4	Liquid						>480				>480	>480	>480		
					Methylene dianiline	101-77-9	Liquid												>480		
					Methylene dianiline (15% in Methyl Ethyl Ketone)	101-77-9	Liquid										>480	>480	>480		
150																					
150																					
					Butanone oxime, 2-	96-29-7	Liquid						>480		>480	>480	>480	>480			
					Methyl ethyl ketoxime	96-29-7	Liquid						>480		>480	>480	>480	>480	>480		
					Tetraethyl ammonium hydroxide (35%)	77-98-5	Liquid						>480				>480				
160																					
161																					
					Acetic anhydride	108-24-7	Liquid						12*/48	>480	>480	>480	>480	>480	>480		
					Maleic anhydride (66 °C, molten)	108-31-6	Liquid						13				22				
210																					
211																					
					Cyclo hexyl isocanyte	3173-53-3	Liquid						36*/54				36*/54				
					Hexamethylene diisocyanate	822-06-0	Liquid			>480				>480	>480	>480	>480	>480	>480	>480	
					Methyl isocyanate	624-83-9	Liquid							imm	12	imm	imm	>480	>480	>480	
212																					

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
																		Diphenyl methane diisocyanate, 4,4'-	101-68-8	Solid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
																		Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
																		Acetic acid pentyl ester	628-63-7	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

Chemical Permeation Data Tables

[illegible]

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
											2-(2-Ethoxyethoxy) ethanol	0	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

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)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® 6000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
											Isopropyl bromoacetate (>95%)	57-1	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
											Diiodo-1,1,2,2-tetrafluorobutane, 1,4-	755-95-3	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
														Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
											Perfluoroethane	76-16-4	Vapor																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
											Methanol)	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® IsoClean® CS
					Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000		
		Trichloro ethylene	79-01-6	Liquid						imm	>480	>480	>480	>480	>480	>480		
		Vinyl chloride	75-01-4	Vapor						>480	>480	>480	>480	>480	>480	>480		
		Vinylidene chloride	75-35-4	Liquid							170	>480	>480	>480	>480	>480		
265																		
		Allyl chloride	107-05-1	Liquid							12	381*/447	381*/447	>480	>480	>480		
		Chlor allylene	107-05-1	Liquid							12	381*/447	381*/447	>480	>480	>480		
		Chloro prene, 3-	107-05-1	Liquid							12	381*/447	381*/447	>480	>480	>480		
266																		
		Benzyl chloride	100-44-7	Liquid							>480	>480	>480	>480	>480	>480		
		Chloro toluene, alpha-	100-44-7	Liquid								>480	>480	>480	>480	>480		>480
270																		
270																		
		2-Methyl-4-isothiazolin-3-one (20%)	2682-20-4	Liquid		>480				>480			>480					
		Benzisothiazol, 1,2- (20%)	2634-33-5	Liquid		>480				>480			>480					
271																		
		Amino pyridine, 2- (sat)	504-29-0	Liquid						>480				>480				
		Methyl pyridine, 2-	109-06-8	Liquid							>480	>480	>480	>480	>480	>480		
		Methyl pyridine, 3-	108-99-6	Liquid							>480	>480	>480	>480	>480	>480		
		Nicotine	54-11-5	Liquid							>480	>480	>480	>480	>480	>480		
		Nicotine (9 mg/ml)	54-11-5	Liquid			>480	>480										
		Picoline, 2-	109-06-8	Liquid							>480	>480	>480	>480	>480	>480		
		Picoline, 3-	108-99-6	Liquid							>480	>480	>480	>480	>480	>480		
		Pyridene, 2-fluoro-6- (trifluoromethyl)	94239-04-0	Liquid								>480	>480					
		Pyridine	110-86-1	Liquid						31	>480	>480	>480	>480	>480	>480		
Vinyl pyridine, 4-	100-43-6	Liquid							15				15					
274																		
		2-Methyl-4-isothiazolin-3-one (20%)	2682-20-4	Liquid		>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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
											Amino ethylpiperazine	140-31-8	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

Chemical Permeation Data Tables

[illegible]

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)												
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
290																													
290																													
Diesel Fuel Grade D-2												mix	Liquid							>480				>480					
291																													
Crude oil, California												8002-05-9	Liquid								>480				>480				
Cyclo hexane												110-82-7	Liquid								>480	>480	>480	>480	>480	>480			
Diesel automotive test fuel												mix	Liquid			imm													
Diesel fuel												68334-30-5	Liquid								199	>480	>480	>480	>480	>480	>480		
Fuel-oil no 2												68476-30-2	Liquid			imm				>480				>480					
Gasoline, leaded												mix	Liquid								imm*/21	imm*/21					>480		
Gasoline, unleaded												86290-81-5	Liquid							imm	>480	>480	>480	>480	>480	>480	>480		
Gasoline, unleaded E10 (87 Octane)												308066-70-8	Liquid							imm				imm					
Heptane												142-82-5	Liquid								>480		>480						
Hexane, n-												110-54-3	Liquid			imm				imm	>480	>480	>480	>480	>480	>480	>480		
JP-4 Jet Fuel												50815-00-4	Liquid							imm				>480	>480	>480	>480		
JP-8 Jet Fuel												94114-58-6	Liquid							39*/67	>480				>480	>480	>480		
Kerosene												8008-20-6	Liquid							69	>480	>480	>480						
Low boiling point naphtha - unspecified												8052-41-3	Liquid											>480	>480	>480			
Mineral oil												8012-95-1	Liquid							>480				>480					
Mineral spirit												64475-85-0	Liquid			imm				190				>480	>480	>480			
Octane, n-												111-65-9	Liquid										>480	>480	>480				
Pentanoic acid												109-52-4	Liquid									>480							
Propane												74-98-6	Vapor											nm	>480				

[illegible]

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® IsoClean® CS
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	
											Crude oil, California	05-9	Liquid						>480					>480	>480	>480	
296																											
											Butadiene, 1,3- (0 °C, liquid)	106-99-0	Liquid												>180		
											Butadiene, 1,3- (gaseous)	106-99-0	Vapor	imm	imm				>480	>480	>480	>480	>480	>480	>480	>480	
											Cyclo octadiene	1552-12-1	Liquid						>480								
											Limonene d-	5989-27-5	Liquid		imm				>480	>480	>480	>480	>480	>480	>480	>480	
											Methyl 4-isopropenyl-1-cyclohexene, 1-	5989-27-5	Liquid		imm				>480	>480	>480	>480	>480	>480	>480	>480	
											Vinyl ethylene (0 °C, liquid)	106-99-0	Liquid												>180		
											Vinyl ethylene (gaseous)	106-99-0	Vapor	imm	imm				>480	>480	>480	>480	>480	>480	>480	>480	
300																											
300																											
											Methyl Ethyl Ketone Peroxide (35%)	1338-23-4	Liquid						>480	>480		>480					
											Peracetic Acid (32%)	79-21-0	Liquid						272	>480		>480					
											Tert-Butyl Hydroperoxide	75-91-2	Liquid								>480						
301																											
											Hydrogen peroxide (10%)	7722-84-1	Liquid				>10	>10									
											Hydrogen peroxide (30%)	7722-84-1	Liquid			>480	imm	imm	>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	>480	
302																											
											Methyl Ethyl Ketone Peroxide (35%)	1338-23-4	Liquid						>480	>480		>480					
											Peracetic Acid (32%)	79-21-0	Liquid						272	>480		>480					
											Tert-Butyl Hydroperoxide	75-91-2	Liquid								>480						
310																											
311																											
											2-(2-Butoxyethoxy) ethanol	112-34-5	Liquid								>480	>480					
											Allyl alcohol	107-18-6	Liquid						>480	>480	>480	>480	>480	>480	>480	>480	
												141-43-															

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
											Amino ethanol, 2-	5	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</

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)																									
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS													
																		Hydroxy toluene	6	Liquid							>480		>480	>480	>480											
																		Isoamyl alcohol	123-51-3	Liquid							>480					>480										
																		Isopropanol	67-63-0	Liquid												>480					>480	>480				
																		Isopropanol (70%)	67-63-0	Liquid												>480										
																		Isopropyl alcohol	67-63-0	Liquid												>480					>480	>480				
																		Isopropyl alcohol (70%)	67-63-0	Liquid												>480										
																		Methyl butan-1-ol, 3-	123-51-3	Liquid												>480										
																		Propan -2-ol	67-63-0	Liquid												>480					>480	>480				
																		Propan -2-ol (70%)	67-63-0	Liquid												>480										
313																																										
																		2-Methyl-2-Butanol	75-85-4	Liquid									>480													
																		Acetone cyanohydrin	75-86-5	Liquid												>480	>480	>480	>480	>480						
																		Amyl alcohol, tert-	75-85-4	Liquid												>480										
																		Butanol, tert-	75-65-0	Liquid												37*/205	37*/205									
																		Cyanopropan-2-ol, 2-	75-86-5	Liquid												>480	>480	>480	>480	>480						
																		Hydroxy 2-methylpropionitrile, 2-	75-86-5	Liquid												>480	>480	>480	>480	>480	>480					
																		Hydroxy isobutyronitrile	75-86-5	Liquid												>480	>480	>480	>480	>480	>480					
																		Methyl propan-2-ol, 2-	75-65-0	Liquid												37*/205	37*/205									
																		Pentanol, tert-	75-85-4	Liquid												>480										
314																																										
																		Chloro 1,2-propanediol, 3-	96-24-2	Liquid										>480	>480	>480										
																		Ethane 1,2-diol	107-21-1	Liquid												>480	imm	imm	imm	>480		>480	>480	>480	>480	
																		Ethylene glycol	107-21-1	Liquid												>480	imm	imm	imm	>480		>480	>480	>480	>480	
																		Glycerine	56-81-5	Liquid												>480	>480									
																		Glycerol	56-81-5	Liquid												>480	>480									
																		Glycol alcohol	107-21-1	Liquid												>480	imm	imm	imm	>480		>480	>480	>480	>480	
																		Propane -1,2,3-triol	56-81-5	Liquid												>480	>480									
315																																										
																		Chloro ethanol, 2-	107-07-3	Liquid							>480	>480	>480	>480	>480	>480										
																		Ethylene chlorohydrin	107-07-3	Liquid												>480	imm				>480	>480	>480	>480		
																		Glycol chlorohydrin	107-07-3	Liquid												>480	imm				>480	>480	>480	>480		
																		Trichloro ethanol, 2,2,2-	115-20-8	Liquid												>480				>480	>480	>480	>480	>480		

C	l	a	s	S ub - C l a s s		CAS	P h a s e	Breakthrough Time (Minutes)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000					
Trifluoro ethanol, 2,2,2-						75-89-8	Liquid		imm							>480	>480	>480			
316																					
Chloro 1-methylbenzene, 2-						95-49-8	Liquid					13	>480	>480	>480	>480	>480	>480			
Chloro phenol, p- (sat in Methanol)						106-48-9	Liquid									>480	>480	>480			
Chloro toluene, o-						95-49-8	Liquid					13	>480	>480	>480	>480	>480	>480			
Creosote						8001-58-9	Liquid							>480	>480						
Cresol o-						95-48-7	Liquid		13			>480	198	179	179	>480					
Cresols, mixed isomers						1319-77-3	Liquid		71			100			>480	>480	>480	>480			
Cresylic acid						1319-77-3	Liquid		71			100			>480	>480	>480	>480			
Dinitro-o-cresol, 4,6- (sat in Methanol)						534-52-1	Liquid									>480	>480	>480			
Dinitrocresol (sat in Methanol)						534-52-1	Liquid									>480	>480	>480			
Hydroxy 2-nitrobenzene, 1- (70 ° C, molten)						88-75-5	Liquid					imm				208	208	208			
Hydroxy chlorobenzene (sat in Methanol)						106-48-9	Liquid									>480	>480	>480			
Hydroxy toluene, o-						95-48-7	Liquid		13			>480	198	179	179	>480					
Methyl phenols						1319-77-3	Liquid		71			100			>480	>480	>480	>480			
Nitro phenol, o- (70 °C, molten)						88-75-5	Liquid					imm				208	208	208			
Pentachlorophenol (sat in Methanol)						87-86-5	Liquid									>480	>480	>480			
Phenol (45 °C, molten)						108-95-2	Liquid					44	17	25	25	101	>480	>480			
Phenol (60 °C, molten)						108-95-2	Liquid					imm	imm		imm	121	87	125			
Phenol (85% at 45 °C)						108-95-2	Liquid									149	>480	>480			
Phenol (85%)						108-95-2	Liquid		11			>480	341	>480	>480	>480	>480	>480			
Tetrachloro bisphenol-A, 2,2', 6,6'-						79-95-8	Solid							>480	>480						
m-Cresol 55%, p-Cresol 30%, Phenol 15% (mix)						mix	Liquid									>480	>480	>480			
318																					
Phenethyl alcohol, 2-						60-12-8	Liquid						>480								
Phenyl ethanol, 1-						98-85-1	Liquid					>480	>480		>480	>480	>480	>480			
330																					

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® IsoClean® CS	
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM		Tychem® 10000FR
330																												
											Bromine	7726-95-6	Liquid			imm					imm	imm	imm	imm	imm	imm	15	
											Bromine (10 g/m ²)	7726-95-6	Liquid														>480	
											Bromine (sat vapour)	7726-95-6	Vapor														30*/40	
											Chlorine (-70 °C, liquid)	7782-50-5	Liquid								>480			441	>480	>480		
											Chlorine (20 ppm)	7782-50-5	Vapor			>480 ⁸												
											Chlorine (gaseous)	7782-50-5	Vapor			imm				>480	imm	>480	>480	>480	>480	>480	>480	
											Iodine	7553-56-2	Solid							>480								
											Mercury	7439-97-6	Liquid			>480				>480	>480	>480	>480	>480	>480	>480	>480	
340																												
340																												
											Ammonium bifluoride (sat)	1341-49-7	Liquid									>480	>480					
											Ammonium chloride (sat)	12125-02-9	Liquid								>480							
											Ammonium fluoride (40%)	12125-01-8	Liquid										>480	>480	>480	>480		
											Ammonium hydrogendifluoride (sat)	1341-49-7	Liquid									>480	>480					
											Arsenic (III) chloride	7784-34-1	Liquid									32*/38	32*/38					
											Arsenic trichloride	7784-34-1	Liquid									32*/38	32*/38					
											Calomel (sat)	10112-91-1	Liquid									>480	>480					
											Disodium sulfide (60% (slurry))	1313-82-2	Liquid			>480				>480	>480			>480	>480	>480		
											Ferric (II) chloride (sat)	7758-94-3	Liquid										>480	>480				
											Ferric (III) chloride (40%)	7705-08-0	Liquid										>480					
											Ferric (III) chloride (50%)	7705-08-0	Liquid							>480			>480					
											Lithium chloride (20%)	7447-41-8	Liquid			>480												
												10112-																

Chemical Permeation Data Tables

C	l	a	s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000					
					Mercuric I chloride (sat)	91-1	Liquid							>480	>480						
					Mercuric II chloride (sat)	7487-94-7	Liquid					>480				>480 ^B	>480 ^B	>480 ^B			
					Potassium acetate (sat)	127-08-2	Liquid					>480			>480	>480 ^B	>480 ^B	>480 ^B			
					Potassium carbonate (sat)	584-08-7	Liquid					>480									
					Potassium chromate (sat)	7789-00-6	Liquid			>480	>480		>480		>480	>480	>480 ^B	>480 ^B	>480 ^B		
					Potassium permanganate (sat)	7722-64-7	Liquid		>480												
					Sodium fluoride (sat)	7681-49-4	Liquid					>480				>480					
					Sodium hypochlorite (10-15 % active chlorine)	7681-52-9	Liquid			>240	>240	>480									
					Sodium hypochlorite (15%)	7681-52-9	Liquid	>480	>480				>480	>480	>480	>480	>480	>480	>480		
					Sodium hypochlorite (5.25-6%)	7681-52-9	Liquid		>480	>480	>480	>480									
					Sodium metabisulphite (38%)	7681-57-4	Liquid		imm				>480	23			>480	>480	>480		
					Sodium silicate (40-42%)	6834-92-0	Liquid		>480												
345																					
				Hydrogen cyanide (21 °C, liquid)	74-90-8	Liquid									135	135	>480				
				Hydrogen cyanide (27 °C, gaseous)	74-90-8	Vapor					30				>480	>480	>480				
				Potassium cyanide (10%)	151-50-8	Liquid		>480													
				Sodium cyanide (45%)	143-33-9	Liquid	>480	>480				>480	>480	>480							
				Sodium cyanide (sat)	143-33-9	Liquid						>480		>480	>480	>480					
350																					
350																					
				Ammonia (-33 °C, liquid)	7664-41-7	Liquid						35	30	20			>480				
				Ammonia (-70 °C, liquid)	7664-41-7	Liquid						>480				>480	>480				
				Ammonia (gaseous)	7664-41-7	Vapor	imm	imm			26	imm	90	20	105*/133	>480	>480				
				Ammonium bifluoride (sat)	1341-49-7	Liquid							>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)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
											Ammonium hydrogendifluoride (sat)	1341-49-7	Liquid																	
											Arsine	7784-42-1	Vapor																	
											Boron trichloride	10294-34-5	Vapor																	
											Boron trifluoride	7637-07-2	Vapor																	
											Carbon monoxide	630-08-0	Vapor																	
											Chlorine (-70 °C, liquid)	7782-50-5	Liquid																	
											Chlorine (20 ppm)	7782-50-5	Vapor																	
											Chlorine (gaseous)	7782-50-5	Vapor																	
											Chlorine trifluoride	7790-91-2	Vapor																	
											Diborane (10%)	19287-45-7	Vapor																	
											Fluorine	7782-41-4	Vapor																	
											Hydrofluoric acid (10%)	7664-39-3	Liquid																	
											Hydrofluoric acid (48-51%)	7664-39-3	Liquid																	
											Hydrofluoric acid (60%)	7664-39-3	Liquid																	
											Hydrofluoric acid (70%)	7664-39-3	Liquid																	
											Hydrogen bromide (gaseous)	10035-10-6	Vapor																	
											Hydrogen chloride (-90 °C, liquid)	7647-01-0	Liquid																	
											Hydrogen chloride (gaseous)	7647-01-0	Vapor																	
											Hydrogen cyanide (21 °C, liquid)	74-90-8	Liquid																	
											Hydrogen cyanide (27 °C, gaseous)	74-90-8	Vapor																	
											Hydrogen fluoride (20-27 °C, gaseous)	7664-39-3	Vapor																	
											Hydrogen selenide	7783-07-5	Vapor																	

Chemical Permeation Data Tables

[illegible]

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)									Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000				
	Silicon tetrachloride	04-7	Liquid						35	>480	>480	>480	>480	>480	>480					
	Thionyl chloride	7719-09-7	Liquid						15	21	21	35	35	90						
	Titan(IV) chloride	7550-45-0	Liquid					imm	120	>480	>480	>480	>480	>480						
	Titanium tetrachloride	7550-45-0	Liquid					imm	120	>480	>480	>480	>480	>480						
	Vanadium tetrachloride	7632-51-1	Liquid							>480										
365																				
Sulfur dioxide	7446-09-5	Vapor		imm				>480		26*/37	28*/46	>480	>480	>480						
Sulfur trioxide	7446-11-9	Liquid							imm			90	90	90						
370																				
370																				
Amido sulfonic acid (15%)	5329-14-6	Liquid		>480								>480	>480	>480	>480					
Chlorosulfonic acid	7790-94-5	Liquid	41					>480	330	17	>480	>480	180	>480						
Chromic acid (CrO3) (44.9%)	1333-82-0	Liquid	>480					>480			>480	>480	>480	>480						
Fluoroboric acid (48-50%)	16872-11-0	Liquid						>480				>480								
Fluorosilicic acid (33-35%)	16961-83-4	Liquid						>480	>480	>480	>480	>480	>480							
Fluorosulfonic acid	7789-21-1	Liquid									194	>480	>480	>480						
Hydriodic acid (47%)	10034-85-2	Liquid						>480				>480								
Hydriodic acid (55-57%)	10034-85-2	Liquid							>480	>480	>480	>480	>480	>480						
Hydrobromic acid (48%)	10035-10-6	Liquid							>480		>480									
Hydrochloric acid (16%)	7647-01-0	Liquid			imm	imm	imm													
Hydrochloric acid (32%)	7647-01-0	Liquid			imm	imm	imm													
Hydrochloric acid (37%)	7647-01-0	Liquid	54	140				>480	>480	>480	>480	>480	>480	>480						
Hydrofluoric acid (10%)	7664-39-3	Liquid					imm													
Hydrofluoric acid (48-51%)	7664-39-3	Liquid	400	446				>480	>480	15	>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)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
									Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000					
						Hydrofluoric acid (60%)	7664-39-3	Liquid							52							
						Hydrofluoric acid (70%)	7664-39-3	Liquid					143	126		35	>480	>480	>480			
						Hydrogen bromide (gaseous)	10035-10-6	Vapor							>480	>480	>480	>480	>480			
						Hydrogen chloride (-90 °C, liquid)	7647-01-0	Liquid											>180			
						Hydrogen chloride (gaseous)	7647-01-0	Vapor			imm			>480	>480	>480	>480	>480	>480			
						Hydrogen cyanide (21 °C, liquid)	74-90-8	Liquid									135	135	>480			
						Hydrogen cyanide (27 °C, gaseous)	74-90-8	Vapor						30		>480	>480	>480				
						Hydrogen fluoride (20-27 °C, gaseous)	7664-39-3	Vapor			imm			93*/134	186	imm	imm	130	>480	>480		
						Hypophosphorus acid (50%)	6303-21-5	Liquid						>480	>480	>480						
						Nitric acid (10%)	7697-37-2	Liquid				>120	>120									
						Nitric acid (30%)	7697-37-2	Liquid				imm	imm	imm								
						Nitric acid (50%)	7697-37-2	Liquid							>480							
						Nitric acid (70%)	7697-37-2	Liquid		203	>480			>480		105*/140	>480	>480	>480	>480		
						Nitric acid (90%)	7697-37-2	Liquid						>480			>480	>480	>480			
						Nitric acid (>95%)	7697-37-2	Liquid							46				390			
						Nitric acid, red fuming (90%)	52583-42-3	Liquid							imm	imm*/10	>480	>480	>480			
						Oleum (103% (13% free SO3))	8014-95-7	Liquid			230								>480			
						Oleum (20% free SO3)	8014-95-7	Liquid			60			>480		15*/59	>480	>480				
						Oleum (30% free SO3)	8014-95-7	Liquid					>480				>480					
						Oleum (40% free SO3)	8014-95-7	Liquid							imm*/12	455*/468	>480	>480	>480			
						Oleum (65% free SO3)	8014-95-7	Liquid						15		248			>480			
						Perchloric acid (70%)	7601-90-3	Liquid								>480	>480	>480	>480			

C	l	a	s	S ub - C l a s s		CAS	P h a s e	Breakthrough Time (Minutes)										Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000					
					Phosphinic acid (50%)	6303-21-5	Liquid						>480	>480	>480						
					Phosphoric acid (50%)	7664-38-2	Liquid			>480	>480	>480									
					Phosphoric acid (85%)	7664-38-2	Liquid					>480	>480	>480	>480	>480	>480				
					Sulfamic acid (15%)	5329-14-6	Liquid		>480					>480	>480	>480	>480				
					Sulfamidic acid (15%)	5329-14-6	Liquid		>480					>480	>480	>480	>480				
					Sulfuric acid (18%)	7664-93-9	Liquid			>240	>240	>480									
					Sulfuric acid (30%)	7664-93-9	Liquid			>240	>240	>480		>480							
					Sulfuric acid (50%)	7664-93-9	Liquid			>30	>30			>480							
					Sulfuric acid (70%)	7664-93-9	Liquid							>480							
					Sulfuric acid (98% at 50 °C)	7664-93-9	Liquid							>480							
					Sulfuric acid (>95%)	7664-93-9	Liquid	>480	>480			>480	>480	50	>480	>480	>480	>480			
					Sulfuric acid fuming (103% (13% free SO3))	8014-95-7	Liquid		230									>480			
					Sulfuric acid fuming (20% free SO3)	8014-95-7	Liquid		60			>480		15*/59	>480	>480					
					Sulfuric acid fuming (30% free SO3)	8014-95-7	Liquid					>480				>480					
					Sulfuric acid fuming (40% free SO3)	8014-95-7	Liquid							imm*/12	455*/468	>480	>480	>480			
					Sulfuric acid fuming (65% free SO3)	8014-95-7	Liquid						15		248			>480			
	380																				
380																					
					Ammonia (-33 °C, liquid)	7664-41-7	Liquid						35	30	20			>480			
					Ammonia (-70 °C, liquid)	7664-41-7	Liquid						>480				>480	>480			
					Ammonia (gaseous)	7664-41-7	Vapor	imm	imm			26	imm	90	20	105*/133	>480	>480			
					Ammonium hydroxide (16%)	1336-21-6	Liquid				imm	imm	imm								
					Ammonium hydroxide (2-3% in Householdcleaner)	1336-21-6	Liquid					>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)												
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
390											Ammonium hydroxide (28% - 30%)	1336-21-6	Liquid				imm	imm	imm			89				160	>480	>480	
											Ammonium hydroxide (32%)	1336-21-6	Liquid							55			35	>480					
											Caustic ammonia (16%)	1336-21-6	Liquid				imm	imm	imm										
											Caustic ammonia (2-3% in Household cleaner)	1336-21-6	Liquid							>480		>480		>480					
											Caustic ammonia (28% - 30%)	1336-21-6	Liquid				imm	imm	imm			89			160	>480	>480		
											Caustic ammonia (32%)	1336-21-6	Liquid							55			35	>480					
											Caustic soda (10%)	1310-73-2	Liquid					>480	>480	>480									
											Caustic soda (40%)	1310-73-2	Liquid					>30	>30										
											Caustic soda (50% at 50 °C)	1310-73-2	Liquid											>480					
											Caustic soda (50%)	1310-73-2	Liquid		>480	>480	>30	>30	>30	>480	>480	>480	>480	>480	>480	>480	>480		
											Caustic soda (>95%, solid)	1310-73-2	Solid				>480	>480											
											Lithium hydroxide (14.9%)	1310-65-2	Liquid		>480	>480													
											Methanethiol	74-93-1	Vapor									>480	>480	>480	>480	>480	>480		
											Methyl mercaptan	74-93-1	Vapor									>480	>480	>480	>480	>480	>480		
											Potassium hydroxide (40%)	1310-58-3	Liquid				imm	imm	>120										
											Potassium hydroxide (45%)	1310-58-3	Liquid		>480	>480					>480	>480	>480	>480	>480	>480	>480		
											Potassium hydroxide (50%)	1310-58-3	Liquid										>480	>480					
											Sodium hydroxide (10%)	1310-73-2	Liquid				>480	>480	>480										
											Sodium hydroxide (40%)	1310-73-2	Liquid				>30	>30											
											Sodium hydroxide (50% at 50 ° C)	1310-73-2	Liquid											>480					
											Sodium hydroxide (50%)	1310-73-2	Liquid		>480	>480	>30	>30	>30	>480	>480	>480	>480	>480	>480	>480	>480		
											Sodium hydroxide (>95%, solid)	1310-73-2	Solid				>480	>480											

390

390

390

390

Chemical Permeation Data Tables

C	l	a	s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)										Tyvek® IsoClean® CS		
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM		Tychem® 10000FR	Tychem® 10000
					2-Methyl-4-isothiazolin-3-one (20%)	2682-20-4	Liquid		>480				>480			>480				
					Benzisothiazol, 1,2- (20%)	2634-33-5	Liquid		>480				>480			>480				
391																				
					2-Methyl-4-isothiazolin-3-one (20%)	2682-20-4	Liquid		>480				>480			>480				
					Acetone	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					Benzisothiazol, 1,2- (20%)	2634-33-5	Liquid		>480				>480			>480				
					But-3-en-2-one	78-94-4	Liquid								>480	>480				
					Butanone	78-93-3	Liquid						18	>480	40*/64	40*/64	>480	>480	>480	
					Chloro acetone (95%)	78-95-5	Liquid						258	>480	>480	>480	>480	>480 ⁸		
					Chloro propan-2-one, 1- (95%)	78-95-5	Liquid						258	>480	>480	>480	>480	>480 ⁸		
					Cyclo hexanone	108-94-1	Liquid						136		>480	>480	>480	>480	>480	
					Dichloro -2-propanone, 1,3- (45 ° C, molten)	534-07-6	Liquid								>480	>480				
					Dichloro -2-propanone, 1,3- (95% at 40 °C, molten)	534-07-6	Liquid												>480	
					Dichloro acetone, 1,3- (45 °C, molten)	534-07-6	Liquid								>480	>480				
					Dichloro acetone, 1,3- (95% at 40 °C, molten)	534-07-6	Liquid												>480	
					Diketene Acetone (95%)	5394-63-8	Liquid									>480				
					Dimethyl ketal	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					Dimethyl ketone	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					Hexanone	108-94-1	Liquid						136		>480	>480	>480	>480	>480	
					Hexone	108-10-1	Liquid							>480	>480	>480	>480	>480	>480	
					Isobutyl methyl ketone	108-10-1	Liquid							>480	>480	>480	>480	>480	>480	
					Ketone propane	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					MEK	78-93-3	Liquid						18	>480	40*/64	40*/64	>480	>480	>480	
					Methyl acetyl	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					Methyl ethyl ketone	78-93-3	Liquid						18	>480	40*/64	40*/64	>480	>480	>480	
					Methyl ketone	67-64-1	Liquid	imm	imm				13	462	>480	>480	>480	>480	>480	
					Methyl pentan-2-one, 4-	108-10-1	Liquid							>480	>480	>480	>480	>480	>480	
					Methyl vinyl ketone	78-94-4	Liquid								>480	>480				

Chemical Permeation Data Tables

[illegible]

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
																		Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
																		Pentene nitrile, cis-2- (70%)	50-7	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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)															
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS			
											N-	62-75-9	Liquid																			
460																																
462																																
											Ethyl parathion	56-38-2	Liquid																			
											Malathion	121-75-5	Liquid																			
											Sarin (GB), MIL-STD-282 (10 g/m ²)	107-44-8	Liquid																			
											Sarin (GB), MIL-STD-282 (100 g /m ²)	107-44-8	Liquid																			
											Soman (GD), FINABEL 0.7.C	96-64-0	Liquid																			
											Soman (GD), MIL-STD-282 (10 g /m ²)	96-64-0	Liquid																			
											Soman (GD), MIL-STD-282 (100 g/m ²)	96-64-0	Liquid																			
											Tabun (GA), FINABEL 0.7.C	77-81-6	Liquid																			
											Tabun (GA), MIL-STD-282 (10 g /m ²)	77-81-6	Liquid																			
											Tabun (GA), MIL-STD-282 (100 g /m ²)	77-81-6	Liquid																			
											Trimethyl phosphate	512-56-1	Liquid																			
											Trimethyl phosphite	121-45-9	Liquid																			
											VX Nerve Agent, FINABEL 0.7.C	50782-69-9	Liquid																			
											VX Nerve Agent, MIL-STD-282 (10 g/m ²)	50782-69-9	Liquid																			
											VX Nerve Agent, MIL-STD-282 (100 g/m ²)	50782-69-9	Liquid																			
470																																
470																																
											Butyl stannium trichloride	1118-46-3	Liquid																			
											Dimethyl mercury in decane (100 ppm in Decane)	593-74-8	Liquid																			
											Lewisite (L), FINABEL 0.7.C	541-25-3	Liquid																			
											Lewisite (L), MIL-STD-282 (10 g /m ²)	541-25-3	Liquid																			
											Lewisite (L), MIL-STD-282 (100 g /m ²)	541-25-3	Liquid																			

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)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
											/m ²)	3	Liquid																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

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® IsoClean® CS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM		Tychem® 10000FR	Tychem® 10000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
											Benzisothiazol, 1,2- (20%)	33-5	Liquid				>480																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

Chemical Permeation Data Tables

C	l	a	s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)									Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
								Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000				
	Ethansulphonic acid (70%)	594-45-6	Liquid										>480							
	Methanesulphonic acid	75-75-2	Liquid									>480	>480							
	Methanesulphonic acid (70%)	75-75-2	Liquid						>480					>480						
	Trifluoro methansulfonic acid	1493-13-6	Liquid						>480		>480	>480	>480	>480	>480	>480				
505																				
Benzene sulfone chloride	98-09-9	Liquid							>480	>480	>480	>480	>480	>480	>480					
Benzene sulfonyl chloride	98-09-9	Liquid							>480	>480	>480	>480	>480	>480	>480					
Methanesulfonyl chloride	124-63-0	Liquid									>480	>480	>480	>480	>480					
507																				
Diethyl sulfate	64-67-5	Liquid							>480	>480	>480				>480					
Dimethyl sulfate	77-78-1	Liquid			imm	imm		>480	>480	>480	>480	>480	>480	>480	>480					
Sodium bisulphite (38-40%)	7631-90-5	Liquid						>480			>480									
Sulfuric acid diethyl ester	64-67-5	Liquid							>480	>480	>480	>480			>480					
Sulfuric acid dimethyl ester	77-78-1	Liquid			imm	imm		>480	>480	>480	>480	>480	>480	>480	>480					
509																				
2-Methyl-4-isothiazolin-3-one (20%)	2682-20-4	Liquid			>480			>480			>480									
Amido sulfonic acid (15%)	5329-14-6	Liquid			>480						>480	>480	>480	>480	>480					
Benzisothiazol, 1,2- (20%)	2634-33-5	Liquid			>480			>480			>480									
Brom thiophene, 2-	1003-09-4	Liquid									>480									
Sulfamic acid (15%)	5329-14-6	Liquid			>480						>480	>480	>480	>480	>480					
Sulfamidic acid (15%)	5329-14-6	Liquid			>480						>480	>480	>480	>480	>480					
Sulfur hexafluoride	2551-62-4	Vapor										>480	>480	>480	>480					
550																				
550																				
Sodium acetate (sat)	127-09-3	Liquid				>480	>480													
Sodium methylate (50% in Methanol)	124-41-4	Liquid										>480	>480	>480						
Tetraethyl ammonium hydroxide (35%)	77-98-5	Liquid							>480				>480							
Tetramethyl ammonium hydroxide (25%)	75-59-2	Liquid			>480				>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)																
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS				
590																																	
590																																	
																		Black Liquor (mix)	mix	Liquid	>480	>480					>480	>480	>480	>480	>480	>480	
																		Boron fluoride ethyl ether	109-63-7	Liquid							>480	>480			>480		
																		Boron trifluoride diethyl etherate	109-63-7	Liquid							>480	>480			>480		
																		Boron trifluoride dimethyl etherate	353-42-4	Liquid						>480	>480	>480					
																		Boron trifluoride etherate	109-63-7	Liquid							>480	>480			>480		
																		Chemguard S-764P14A	mix	Liquid		>480				>480			>480				
																		Chemidize 727 ND (mix)	mix	Liquid						>480			>480				
																		Dahlgren Decon solution	mix	Liquid							>480	>480					
																		Dowtherm Heat Transfer Fluid	mix	Liquid						>480		>480					
																		DuPont Activator 193S (mix)	mix	Liquid		>480											
																		DuPont Activator 4505S (mix)	mix	Liquid		>480											
																		DuPont Activator 4507S (mix)	mix	Liquid		>480											
																		Green Liquor (mix)	mix	Liquid	>480	>480				>480	>480	>480	>480	>480	>480		
																		Skydrol 4D	mix	Liquid						>480							
																		Skydrol 5	mix	Liquid						>480							
																		Skydrol PE-5	mix	Liquid						>480							
																		Spectracide® (50% Malathion, 44% Aromatic Solvent)	mix	Liquid		imm				>480							
																		White Liquor	mix	Liquid	>480	>480				>480	>480	>480	>480	>480	>480		
																		t-Sodium-amylate / t-amyl alcohol (mix)	mix	Liquid										120	120	120	
990																																	
991																																	
																		Carboplatin (10 mg/ml)	41575-94-4	Liquid				>240	>240	>240						>240	
																		Carmustine (3.3 mg/ml, 10 % Ethanol)	154-93-8	Liquid		>240	imm	imm	>240							imm	
																		Cisplatin (1 mg/ml)	15663-27-1	Liquid			>240	>240	>240							>240	
																		Cyclo phosphamide (20 mg/ml)	50-18-0	Liquid		>240	>240	>240	>240							>10	
																		Doxorubicin HCl (2 mg/ml)	25136-40-9	Liquid		>240	>240	>240	>240							>240	
																		Etoposide (Toposar®, Teva) (20 mg/ml, 33.2 % (v/v) Ethanol)	33419-42-0	Liquid		>240	>240	>240	>240							>240	
																		Fluorouracil, 5- (50 mg/ml)	51-21-8	Liquid		>240	imm	imm	>240							imm	
																			82410-														

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)												
																	Tychem® 2000 SFR	Tychem® 2000	Tyvek® 500	Tyvek® 600	Tyvek® 800	Tychem® 4000	Tychem® 5000	Tychem® 6000 FR	Tychem® 6000	Tychem® RESPONDER® CSM	Tychem® 10000FR	Tychem® 10000	Tyvek® IsoClean® CS
											Ganciclovir (3 mg/ml)	32-0	Liquid				>240	>240											
											Gemcitabine (38 mg/ml)	95058-81-4	Liquid				>60	>60	>240									>60	
											Ifosfamide (50 mg/ml)	3778-73-2	Liquid				imm	imm	>240								imm		
											Irinotecan (20 mg/ml)	100286-90-6	Liquid				>240	>240											
											Methotrexate (25 mg/ml, 0.1 N NaOH)	59-05-2	Liquid				>240	>240	>240										
											Mitomycin (0.5 mg/ml)	50-07-7	Liquid				>240	>240	>240										
											Oxaliplatin (5 mg/ml)	63121-00-6	Liquid				imm	imm	>240								imm		
											Paclitaxel (Hospira) (6 mg/ml, 49.7 % (v/v) Ethanol)	33069-62-4	Liquid				>240	>240	>240							>240			
											Sodium chloride (9 g/l)	7647-14-5	Liquid				>240	>240											
											Thiotepa (10 mg/ml)	52-24-4	Liquid				>240	imm	imm	>240							imm		
											Vincristine sulfate (1 mg/ml)	2068-78-2	Liquid				>240	>240											
											Vinorelbine (0.1 mg/ml)	71486-22-1	Liquid				>240	>240											
> = 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.																													

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® IsoClean® CS
					Tyvek® 500	Tyvek® 600	Tyvek® 800	
100								
102								
		Acetic acid (10%)	64-19-7	Liquid			imm	
		Acetic acid (2%)	64-19-7	Liquid			imm	
		Acetic acid (30%)	64-19-7	Liquid	imm	imm	imm	
		Acetic acid (5%)	64-19-7	Liquid			imm	
		Formic acid (30%)	64-18-6	Liquid	imm	imm		
120								
121								
		Formaldehyde (10%)	50-00-0	Liquid			imm	
		Formalin (10%)	50-00-0	Liquid			imm	
270								
271								
		Nicotine (9 mg/ml)	54-11-5	Liquid	>480	>480		
300								
301								
		Hydrogen peroxide (10%)	7722-84-1	Liquid	>10	>10		
		Hydrogen peroxide (30%)	7722-84-1	Liquid	imm	imm		
310								
311								
		Ethanol	64-17-5	Liquid			imm	
		Ethyl alcohol	64-17-5	Liquid			imm	
		Spiritus	64-17-5	Liquid			imm	
312								
		Isopropanol	67-63-0	Liquid			imm	
		Isopropanol (70%)	67-63-0	Liquid			imm	
		Isopropyl alcohol	67-63-0	Liquid			imm	
		Isopropyl alcohol (70%)	67-63-0	Liquid			imm	
		Propan -2-ol	67-63-0	Liquid			imm	

Chemical Permeation Data Table

C	l	a	s	S u b - C l a s s	Chemical Name	CAS	P h a s e	Breakthrough Time (Minutes)			Tyvek® IsoClean® CS
								Tyvek® 500	Tyvek® 600	Tyvek® 800	
					Propan -2-ol (70%)	67-63-0	Liquid			imm	
					314						
					Ethane 1,2-diol	107-21-1	Liquid	imm	imm	imm	
					Ethylene glycol	107-21-1	Liquid	imm	imm	imm	
					Glycerine	56-81-5	Liquid	>480	>480		
					Glycerol	56-81-5	Liquid	>480	>480		
					Glycol alcohol	107-21-1	Liquid	imm	imm	imm	
					Propane -1,2,3-triol	56-81-5	Liquid	>480	>480		
					340						
					340						
					Potassium chromate (sat)	7789-00-6	Liquid	>480	>480		
					Sodium hypochlorite (10-15 % active chlorine)	7681-52-9	Liquid	>240	>240	>480	
					Sodium hypochlorite (5.25-6%)	7681-52-9	Liquid	>480	>480	>480	
					350						
					350						
					Hydrofluoric acid (10%)	7664-39-3	Liquid			imm	
					370						
					370						
					Hydrochloric acid (16%)	7647-01-0	Liquid	imm	imm	imm	
					Hydrochloric acid (32%)	7647-01-0	Liquid	imm	imm	imm	
					Hydrofluoric acid (10%)	7664-39-3	Liquid			imm	
					Nitric acid (10%)	7697-37-2	Liquid	>120	>120		
					Nitric acid (30%)	7697-37-2	Liquid	imm	imm	imm	
					Phosphoric acid (50%)	7664-38-2	Liquid	>480	>480	>480	
					Sulfuric acid (18%)	7664-93-9	Liquid	>240	>240	>480	
					Sulfuric acid (30%)	7664-93-9	Liquid	>240	>240	>480	
					Sulfuric acid (50%)	7664-93-9	Liquid	>30	>30		
					380						
					380						

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® IsoClean® CS
					Tyvek® 500	Tyvek® 600	Tyvek® 800	
500		Ammonium hydroxide (16%)	1336-21-6	Liquid	imm	imm	imm	
		Ammonium hydroxide (28% - 30%)	1336-21-6	Liquid	imm	imm		
		Caustic ammonia (16%)	1336-21-6	Liquid	imm	imm	imm	
		Caustic ammonia (28% - 30%)	1336-21-6	Liquid	imm	imm		
		Caustic soda (10%)	1310-73-2	Liquid	>480	>480	>480	
		Caustic soda (40%)	1310-73-2	Liquid	>30	>30		
		Caustic soda (50%)	1310-73-2	Liquid	>30	>30	>30	
		Caustic soda (>95%, solid)	1310-73-2	Solid	>480	>480		
		Potassium hydroxide (40%)	1310-58-3	Liquid	imm	imm	>120	
		Sodium hydroxide (10%)	1310-73-2	Liquid	>480	>480	>480	
		Sodium hydroxide (40%)	1310-73-2	Liquid	>30	>30		
		Sodium hydroxide (50%)	1310-73-2	Liquid	>30	>30	>30	
		Sodium hydroxide (>95%, solid)	1310-73-2	Solid	>480	>480		
		500						
507								
	Dimethyl sulfate	77-78-1	Liquid	imm	imm			
	Sulfuric acid dimethyl ester	77-78-1	Liquid	imm	imm			
550								
550								
	Sodium acetate (sat)	127-09-3	Liquid	>480	>480			
990								
991								
	Carboplatin (10 mg/ml)	41575-94-4	Liquid	>240	>240	>240	>240	
	Carmustine (3.3 mg/ml, 10 % Ethanol)	154-93-8	Liquid	imm	imm	>240	imm	
	Cisplatin (1 mg/ml)	15663-27-1	Liquid	>240	>240	>240	>240	
	Cyclo phosphamide (20 mg/ml)	50-18-0	Liquid	>240	>240	>240	>10	
	Doxorubicin HCl (2 mg/ml)	25136-40-9	Liquid	>240	>240	>240	>240	

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® IsoClean® CS
					Tyvek® 500	Tyvek® 600	Tyvek® 800	
		Etoposide (Toposar®, Teva) (20 mg/ml, 33.2 % (v/v) Ethanol)	33419-42-0	Liquid	>240	>240	>240	>240
		Fluorouracil, 5- (50 mg/ml)	51-21-8	Liquid	imm	imm	>240	imm
		Ganciclovir (3 mg/ml)	82410-32-0	Liquid	>240	>240		
		Gemcitabine (38 mg/ml)	95058-81-4	Liquid	>60	>60	>240	>60
		Ifosfamide (50 mg/ml)	3778-73-2	Liquid	imm	imm	>240	imm
		Irinotecan (20 mg/ml)	100286-90-6	Liquid	>240	>240		
		Methotrexate (25 mg/ml, 0.1 N NaOH)	59-05-2	Liquid	>240	>240	>240	
		Mitomycin (0.5 mg/ml)	50-07-7	Liquid	>240	>240	>240	
		Oxaliplatin (5 mg/ml)	63121-00-6	Liquid	imm	imm	>240	imm
		Paclitaxel (Hospira) (6 mg/ml, 49.7 % (v/v) Ethanol)	33069-62-4	Liquid	>240	>240	>240	>240
		Sodium chloride (9 g/l)	7647-14-5	Liquid	>240	>240		
		Thiotepa (10 mg/ml)	52-24-4	Liquid	imm	imm	>240	imm
		Vincristine sulfate (1 mg/ml)	2068-78-2	Liquid	>240	>240		
		Vinorelbine (0.1 mg/ml)	71486-22-1	Liquid	>240	>240		
<p>> = greater than imm. = immediate (<10 minutes) {empty} = not tested L = Liquid G = Gas S = Solid</p> <p>* Actual breakthrough time; normalized breakthrough time is not available.</p> <p>** Solid tested, vapor phase permeation measured.</p>								



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
109-55-7	1,3-Propanediamine, N,N'-Dimethyl		140	148	95-76-1	Amino 3,4-dichlorobenzene, 1-	Amino 3,4-dichlorobenzene, 1-	260	263
112-34-5	2-(2-Butoxyethoxy) ethanol	Diethylene glycol monobutyl ether	310	311	62-53-3	Amino benzene	Amino benzene::Benzenamine::Phenyl amine	140	145
112-34-5	2-(2-Butoxyethoxy) ethanol	Diethylene glycol monobutyl ether	240	245	92-67-1	Amino diphenyl, 4-		140	145
111-90-0	2-(2-Ethoxyethoxy) ethanol		240	245	141-43-5	Amino ethanol, 2-	Amino ethanol, 2-	140	141
75-85-4	2-Methyl-2-Butanol	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313	141-43-5	Amino ethanol, 2-	Amino ethanol, 2-	310	311
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	270	270	111-41-1	Amino ethylethanolamine		140	148
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	390	390	111-41-1	Amino ethylethanolamine		310	311
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	270	274	111-41-1	Amino ethylethanolamine		140	142
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	500	509	140-31-8	Amino ethylpiperazine		140	141
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	390	391	140-31-8	Amino ethylpiperazine		140	148
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	500	500	140-31-8	Amino ethylpiperazine		270	274
75-07-0	Acetaldehyde		120	121	75-31-0	Amino propane, 2-	Amino propane, 2-	140	141
64-19-7	Acetic acid		100	102	504-29-0	Amino pyridine, 2-		270	271
111-15-9	Acetic acid 2 ethoxy ethyl ester	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245	7664-41-7	Ammonia	30081410	380	380
110-49-6	Acetic acid 2 methoxy ethyl ester	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245	7664-41-7	Ammonia	30081410	350	350
108-05-4	Acetic acid ethenyl ester	Acetic acid ethenyl ester	220	222	7664-41-7	Ammonia		380	380
141-78-6	Acetic acid ethyl ester	Acetic acid ethyl ester	220	222	7664-41-7	Ammonia		350	350
628-63-7	Acetic acid pentyl ester	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222	1341-49-7	Ammonium bifluoride	Ammonium hydrogendifluoride	340	340
108-24-7	Acetic anhydride		160	161	1341-49-7	Ammonium bifluoride	Ammonium hydrogendifluoride	350	350
75-36-5	Acetic chloride	Acetic chloride::Ethanoyl chloride	110	111	12125-02-9	Ammonium chloride		340	340
67-64-1	Acetone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391	12125-01-8	Ammonium fluoride		340	340
75-86-5	Acetone cyanohydrin	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	430	431	1341-49-7	Ammonium hydrogendifluoride	Ammonium hydrogendifluoride	340	340
75-86-5	Acetone cyanohydrin	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	310	313	1341-49-7	Ammonium hydrogendifluoride	Ammonium hydrogendifluoride	350	350
75-05-8	Acetonitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431	1336-21-6	Ammonium hydroxide	Caustic ammonia	380	380
13831-31-7	Acetoxycetyl Chloride		110	111	628-63-7	Amyl acetate, n-	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
75-36-5	Acetyl chloride	Acetic chloride::Ethanoyl chloride	110	111	71-41-0	Amyl alcohol	Amyl alcohol	310	311
79-10-7	Acroleic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102	75-85-4	Amyl alcohol, tert-	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313
107-02-8	Acrolein	Prop-2-en-1-al	120	121	628-63-7	Amyl ester acetic acid	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
79-06-1	Acrylamide	Acrylicamide::Propenamide	130	135	461-82-5	Anilin, 4-Trifluoromethoxy-		140	145
79-10-7	Acrylic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102	62-53-3	Aniline	Amino benzene::Benzenamine::Phenyl amine	140	145
140-88-5	Acrylic acid ethyl ester	Acrylic acid ethyl ester	220	223	120-12-7	Anthracene	Anthracin	290	293
141-32-2	Acrylic acid n-butyl ester	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223	120-12-7	Anthracene	Anthracin	290	293
79-06-1	Acrylicamide	Acrylicamide::Propenamide	130	135	7647-18-9	Antimony pentachloride	Pentachloroantimony	360	360
107-13-1	Acrylonitrile	Cyanoethylene::Propenenitrile, 2::Propenoic acid nitrile::Vinyl cyanide	430	431	8007-56-5	Aqua regia	Aqua regia	370	370
814-68-6	Acryloyl Chloride		110	111	7784-34-1	Arsenic (III) chloride	Arsenic trichloride	340	340
111-69-3	Adipic acid dinitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431	7784-34-1	Arsenic trichloride	Arsenic trichloride	340	340
111-69-3	Adipic acid nitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431	7784-42-1	Arsine		350	350
111-69-3	Adiponitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431	151-56-4	Aziridine	Aziridine	270	274
					123-75-1	Azolidine	Azolidine	270	274
					100-52-7	Benzaldehyde	Benzaldehyde	120	122
					62-53-3	Benzenamine	Amino benzene::Benzenamine::Phenyl amine	140	145
					71-43-2	Benzene		290	292
					98-88-4	Benzene carbonyl chloride	Benzene carbonyl chloride	110	112
					98-09-9	Benzene sulfone chloride	Benzene sulfone chloride	500	505
					98-09-9	Benzene sulfonyl chloride	Benzene sulfone chloride	500	505

111-69-3	Adipyl dinitrile	Adipic acid dinitrile::Adipic acid nitrile:: Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
107-18-6	Allyl alcohol	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311
107-05-1	Allyl chloride	Chlor allylene::Chloro prene, 3-	260	265
5329-14-6	Amido sulfonic acid	Amido sulfonic acid::Sulfamidic acid	500	509
5329-14-6	Amido sulfonic acid	Amido sulfonic acid::Sulfamidic acid	370	370
75-64-9	Amino 2-methylpropane, 2-	Amino 2-methylpropane, 2-::Trimethyl aminomethane	140	143
95-76-1	Amino 3,4-dichlorobenzene, 1-	Amino 3,4-dichlorobenzene, 1-	140	145



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
108-98-5	Benzene thiol	Benzene thiol	500	501	75-65-0	Butanol, tert-	Methyl propan-2-ol, 2-	310	313
328-84-7	Benzene, Dichloro-4-Trifluoro		260	263	78-93-3	Butanone	Butanone::MEK	390	391
92-87-5	Benzidine	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145	96-29-7	Butanone oxime, 2-	Butanone oxime, 2-	150	150
92-87-5	Benzidine	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149	123-73-9	Butenal, 2-	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	390	390	111-76-2	Butoxy ethanol, 2-	Ethylene glycol monobutyl ether	240	245
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	500	500	143-22-6	Butoxytriglycol		240	245
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	270	274	123-86-4	Butyl acetate, n-		220	222
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	500	509	141-32-2	Butyl acrylate, n-	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	390	391	71-36-3	Butyl alcohol, n-	Butanol, n-::Butyl alcohol, n-	310	311
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	270	270	109-73-9	Butyl amine		140	141
100-47-0	Benzo nitrile	Cyanobenzene::Phenyl cyanide	430	432	75-64-9	Butyl amine, tert-	Amino 2-methylpropane, 2-::Trimethyl aminomethane	140	143
98-07-7	Benzo trichloride		260	263	112-07-2	Butyl Cellosolve Acetate		240	245
98-88-4	Benzoyl chloride	Benzene carbonyl chloride	110	112	29911-28-2	Butyl Dipropasol Solvent		240	245
100-51-6	Benzyl alcohol	Hydroxy toluene	310	312	142-96-1	Butyl ether, n-		240	241
100-44-7	Benzyl chloride	Chloro toluene, alpha-	260	266	1118-46-3	Butyl stannium trichloride	Butyl stannium trichloride	470	470
501-53-1	Benzyl chloro formate		110	113	592-34-7	Butylchloroformate		110	113
140-29-4	Benzyl cyanide	Phenyl acetonitrile	430	432	592-34-7	Butylchloroformate		220	221
103-67-3	Benzyl methylamine, N-	Methyl benzylamine, N-	290	292	592-34-7	Butylchloroformate		260	260
103-67-3	Benzyl methylamine, N-	Methyl benzylamine, N-	140	146	123-72-8	Butyraldehyde, n-	Butyraldehyde, n-	120	121
92-87-5	Biphenyl 4,4'-diamine, 1,1'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149	107-92-6	Butyric Acid		100	102
92-87-5	Biphenyl 4,4'-diamine, 1,1'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145	10112-91-1	Calomel	Calomel	340	340
1675-54-3	Bis (4-(2,3-epoxypropoxy)phenyl)propane	Bis (4-(2,3-epoxypropoxy)phenyl)propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275	75-15-0	Carbon disulfide		500	502
1675-54-3	Bis phenol A diglycidyl ether	Bis (4-(2,3-epoxypropoxy)phenyl)propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275	630-08-0	Carbon monoxide		350	350
mix	Black Liquor		590	590	56-23-5	Carbon tetrachloride	Tetrachloro methane	260	261
109-63-7	Boron fluoride ethyl ether	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590	75-73-0	Carbon tetrafluoride	Carbon tetrafluoride	260	261
10294-34-5	Boron trichloride		360	360	41575-94-4	Carboplatin		990	991
10294-34-5	Boron trichloride		350	350	154-93-8	Carmustine		990	991
7637-07-2	Boron trifluoride		360	360	1336-21-6	Caustic ammonia	Caustic ammonia	380	380
7637-07-2	Boron trifluoride		350	350	1310-73-2	Caustic soda	Caustic soda	380	380
109-63-7	Boron trifluoride diethyl etherate	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590	110-80-5	Cellosolve acetate	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
353-42-4	Boron trifluoride dimethyl etherate		590	590	mix	Chemguard S-764P14A	Chemguard S-764P14A	590	590
109-63-7	Boron trifluoride etherate	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590	mix	Chemidize 727 ND		590	590
1003-09-4	Brom thiophene, 2-		500	509	107-05-1	Chlor allylene	Chloro allylene::Chloro prene, 3-	260	265
7726-95-6	Bromine		330	330	76-06-2	Chlor trinitromethan	Chloro picrin::Nitro chlormethan	260	261
460-00-4	Bromo 4-fluorobenzene, 1-	Bromo 4-fluorobenzene, 1-	260	263	57-74-9	Chlordane		260	261
460-00-4	Bromo fluorobenzene, 4-	Bromo 4-fluorobenzene, 1-	260	263	7782-50-5	Chlorine		330	330
74-83-9	Bromo methane	Bromo methane	260	261	7782-50-5	Chlorine		350	350
927-68-4	Bromoethyl Acetate, 2-		260	261	10545-99-0	Chlorine sulfide	Sulphur dichloride	500	502
927-68-4	Bromoethyl Acetate, 2-		220	222	7790-91-2	Chlorine trifluoride		350	350
75-25-2	Bromoform		260	261	96-24-2	Chloro 1,2-propanediol, 3-		310	314
78-94-4	But-3-en-2-one	But-3-en-2-one	390	391	95-49-8	Chloro 1-methylbenzene, 2-	Chloro 1-methylbenzene, 2-	310	316
					95-49-8	Chloro 1-methylbenzene, 2-	Chloro 1-methylbenzene, 2-	260	263
					106-89-8	Chloro 2,3-epoxy propane, 1-	Chloro 2,3-epoxy propane, 1-	270	275
					106-89-8	Chloro 2,3-epoxy propane, 1-	Chloro 2,3-epoxy propane, 1-	260	261
					88-73-3	Chloro 2-nitrobenzene, 1-	Chloro 2-nitrobenzene, 1-	260	263



DuPont Permeation Guide



106-99-0	Butadiene, 1,3-	Vinyl ethylene	290	296
123-72-8	Butanal, n-	Butyraldehyde, n-	120	121
71-36-3	Butanol, 1-	Butanol, n-; Butyl alcohol, n-	310	311
71-36-3	Butanol, n-	Butanol, n-; Butyl alcohol, n-	310	311



APPENDIX
CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
88-73-3	Chloro 2-nitrobenzene, 1-	Chloro 2-nitrobenzene, 1-	440	442
79-11-8	Chloro acetic acid		100	103
78-95-5	Chloro acetone	Chloro propan-2-one, 1-	390	391
79-04-9	Chloro acetyl chloride		110	111
920-37-6	Chloro acrylonitrile, 2-		260	264
920-37-6	Chloro acrylonitrile, 2-		430	431
106-47-8	Chloro aniline, p-	Chloro benzenamine, 4-	140	145
106-47-8	Chloro benzenamine, 4-	Chloro benzenamine, 4-	140	145
108-90-7	Chloro benzene	Phenyl chloride	260	263
5216-25-1	Chloro benzotrichloride, 4-		260	263
98-56-6	Chloro benzotrifluoride, 4-		260	263
107-07-3	Chloro ethanol, 2-	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-07-3	Chloro ethanol, 2-	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
75-01-4	Chloro ethene	Chloro ethene	260	264
67-66-3	Chloro form	Trichloro methane	260	261
107-30-2	Chloro methyl methyl ether	Methoxy chloromethane	240	241
106-48-9	Chloro phenol, p-	Hydroxy chlorobenzene	260	263
106-48-9	Chloro phenol, p-	Hydroxy chlorobenzene	310	316
76-06-2	Chloro picrin	Chloro picrin::Nitro chlormethan	260	261
107-05-1	Chloro prene, 3-	Chlor allylene::Chloro prene, 3-	260	265
78-95-5	Chloro propan-2-one, 1-	Chloro propan-2-one, 1-	390	391
100-44-7	Chloro toluene, alpha-	Chloro toluene, alpha-	260	266
95-49-8	Chloro toluene, o-	Chloro 1-methylbenzene, 2-	260	263
95-49-8	Chloro toluene, o-	Chloro 1-methylbenzene, 2-	310	316
105-39-5	Chloroacetic ethylester		220	222
7790-94-5	Chlorosulfonic acid		500	504
7790-94-5	Chlorosulfonic acid		370	370
1333-82-0	Chromic acid (CrO3)		370	370
1333-82-0	Chromic acid (H2SO4 x CrO3)		370	370
15663-27-1	Cisplatin		990	991
77-92-9	Citric acid	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	100	104
68956-56-9	Citrus Terpenes Mixture		140	148
8001-58-9	Creosote		310	316
95-48-7	Cresol o-	Hydroxy toluene, o-	310	316
1319-77-3	Cresols, mixed isomers	Cresylic acid::Methyl phenols	310	316
1319-77-3	Cresylic acid	Cresylic acid::Methyl phenols	310	316
123-73-9	Croton aldehyde	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
8002-05-9	Crude oil, California	Mineral oil	290	291
8002-05-9	Crude oil, California	Mineral oil	290	294
98-82-8	Cumene	Isopropyl benzene::Phenyl propane, 2-	290	292
420-04-2	Cyanamide		130	132
108-77-0	Cyanide chloride	Trichloro 1,3,5-triazine, 2,4,6-	260	263
108-77-0	Cyanide chloride	Trichloro 1,3,5-triazine, 2,4,6-	270	274
100-47-0	Cyanobenzene	Cyanobenzene::Phenyl cyanide	430	432
107-13-1	Cyanoethylene	Cyanoethylene::Propenenitrile, 2-::Propenoic acid nitrile::Vinyl cyanide	430	431

CAS Number	Chemical Name	Synonym	Class	Sub-Class
75-05-8	Cyanomethane	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-86-5	Cyanopropan-2-ol, 2-	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	310	313
75-86-5	Cyanopropan-2-ol, 2-	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	430	431
110-82-7	Cyclo hexane		290	291
108-94-1	Cyclo hexanone	Hexanone::Pimelic ketone	390	391
3173-53-3	Cyclo hexyl isocyanate		210	211
1552-12-1	Cyclo octadiene		290	296
50-18-0	Cyclo phosphamide		990	991
108-93-0	Cyclohexanol	Hexalin	310	312
mix	Dahlgren Decon solution	Dahlgren Decon solution	590	590
117-81-7	DEHP	DEHP	220	226
108-83-8	Di Isobutyl Ketone	Dimethyl-4-Heptanone, 2,6-	390	391
123-42-2	Diacetone Alcohol		390	391
13360-57-1	Diamino sulfo chloride		260	261
92-87-5	Diaminobiphenyl, 4,4'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
92-87-5	Diaminobiphenyl, 4,4'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
92-87-5	Diaminodiphenyl, p-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
92-87-5	Diaminodiphenyl, p-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
101-77-9	Diaminodiphenylmethane, 4,4'-	Diaminodiphenylmethane, 4,4'-	140	145
101-77-9	Diaminodiphenylmethane, 4,4'-	Diaminodiphenylmethane, 4,4'-	140	149
107-15-3	Diaminoethane, 1,2-	Diaminoethane, 1,2-	140	148
19287-45-7	Diborane		350	350
96-12-8	Dibromo -3-chloropropane, 1,2-		260	261
106-93-4	Dibromoethane, 1,2-	Dibromoethane, 1,2-	260	261
84-74-2	Dibutyl 1,2-benzenedicarboxylate	Dibutyl 1,2-benzenedicarboxylate	220	226
84-74-2	Dibutyl phthalate	Dibutyl 1,2-benzenedicarboxylate	220	226
109-43-3	Dibutyl sebacate		220	224
95-50-1	Dichlorbenzen, 1,2-		260	263
541-73-1	Dichlorbenzen, 1,3-		260	263
106-46-7	Dichlorbenzen, 1,4-		260	263
107-06-2	Dichlorethane, 1,2-	Ethylene dichloride	260	261
534-07-6	Dichloro -2-propanone, 1,3-	Dichloro -2-propanone, 1,3-	260	261
534-07-6	Dichloro -2-propanone, 1,3-	Dichloro -2-propanone, 1,3-	390	391
101-14-4	Dichloro -4,4'-methylenedianiline, 2,2'-	Dichloro -4,4'-methylenedianiline, 2,2'-	140	149
30894-74-7	Dichloro -6-isopropyl-S-triazine, 2,4-		270	274
534-07-6	Dichloro acetone, 1,3-	Dichloro -2-propanone, 1,3-	390	391
534-07-6	Dichloro acetone, 1,3-	Dichloro -2-propanone, 1,3-	260	261
79-36-7	Dichloro acetyl chloride		110	111
95-76-1	Dichloro aniline, 3,4-	Amino 3,4-dichlorobenzene, 1-	260	263
95-76-1	Dichloro aniline, 3,4-	Amino 3,4-dichlorobenzene, 1-	140	145
111-44-4	Dichloro ethyl ether		260	261
111-44-4	Dichloro ethyl ether		240	241
75-35-4	Dichloro ethylene, 1,1-	Dichloro ethylene, 1,1-	260	264



DuPont Permeation Guide



75-09-2	Dichloro ethylene, 1,1-	Dichloro ethylene, 1,1-	260	261
75-09-2	Dichloro methane	Methylene chloride	260	261
542-75-6	Dichloro propene, 1,3-		260	261

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
78-88-6	Dichloro propene, 2,3-		260	261	75-18-3	Dimethyl sulfide		500	502
4109-96-0	Dichloro silane		480	480	67-68-5	Dimethyl sulfoxide		500	503
628-76-2	Dichloropentane		260	261	108-83-8	Dimethyl-4-Heptanone, 2,6-	Dimethyl-4-Heptanone, 2,6-	390	391
111-69-3	Dicyanobutane, 1,4-	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431	108-59-8	Dimethylmalonate	Dimethylmalonate	220	220
mix	Diesel automotive test fuel		290	291	108-59-8	Dimethylmalonate	Dimethylmalonate	220	224
68334-30-5	Diesel fuel		290	291	534-52-1	Dinitro-o-cresol, 4,6-	Dinitro-o-cresol, 4,6-	310	316
mix	Diesel Fuel Grade D-2		290	290	534-52-1	Dinitro-o-cresol, 4,6-	Dinitro-o-cresol, 4,6-	440	442
111-42-2	Diethanolamine		140	142	534-52-1	Dinitrocresol	Dinitro-o-cresol, 4,6-	440	442
109-89-7	Diethyl amine	Ethyl ethanamine, N-	140	142	534-52-1	Dinitrocresol	Dinitro-o-cresol, 4,6-	310	316
91-66-7	Diethyl aniline crude		140	146	123-91-1	Dioxane, 1,4-		270	278
91-66-7	Diethyl aniline, N,N-		140	146	101-68-8	Diphenyl methane diisocyanate, 4,4'-	Methylene diphenyl diisocyanate, 4,4'-	210	212
25340-17-4	Diethyl benzene		290	292	503-38-8	Diphosgene		110	113
121-44-8	Diethyl ethanamine, N,N-	Diethyl ethanamine, N,N-	140	143	503-38-8	Diphosgene		260	260
60-29-7	Diethyl ether	Diethyl ether	240	241	503-38-8	Diphosgene		220	221
117-81-7	Diethyl hexyl phthalate	DEHP	220	226	29911-27-1	Dipropylene Glycol Monopropyl Ether		240	245
91-67-8	Diethyl m-toluidine, N,N-		140	145	1313-82-2	Disodium sulfide		340	340
64-67-5	Diethyl sulfate	Sulfuric acid diethyl ester	500	507	10025-67-9	Disulphur dichloride	Disulphur dichloride	500	502
111-46-6	Diethylene Glycol		310	314	1321-74-0	Divinyl Benzene		290	292
112-34-5	Diethylene glycol monobutyl ether	Diethylene glycol monobutyl ether	240	245	mix	Dowtherm Heat Transfer Fluid	Dowtherm Heat Transfer Fluid	590	590
112-34-5	Diethylene glycol monobutyl ether	Diethylene glycol monobutyl ether	310	311	25136-40-9	Doxorubicin HCl		990	991
111-77-3	Diethylene Glycol Monomethyl Ether		240	245	mix	DuPont Activator 193S		590	590
6881-94-3	Diethylene Glycol Monopropyl Ether		240	245	mix	DuPont Activator 4505S		590	590
110-91-8	Diethylene imide oxide	Diethylene imide oxide	270	274	mix	DuPont Activator 4507S		590	590
110-91-8	Diethylene imide oxide	Diethylene imide oxide	270	278	15520-10-2	Dytek® A		140	148
111-40-0	Diethylene triamine		140	148	106-89-8	Epichlorohydrin	Chloro 2,3-epoxy propane, 1-	270	275
755-95-3	Diiodo-1,1,2,2-tetrafluorobutane, 1,4-		260	261	106-89-8	Epichlorohydrin	Chloro 2,3-epoxy propane, 1-	260	261
7087-68-5	Diisopropylethylamine (DIPEA)		140	141	75-21-8	Epoxy ethane	Epoxy ethane	270	275
5394-63-8	Diketene Acetone		270	278	75-56-9	Epoxy propane, 1,2-	Epoxy propane, 1,2-	270	275
5394-63-8	Diketene Acetone		390	391	107-21-1	Ethane 1,2-diol	Ethane 1,2-diol::Glycol alcohol	310	314
127-19-5	Dimethyl acetamide, N,N-		130	132	144-62-7	Ethane dioic acid	Ethane dioic acid	100	104
124-40-3	Dimethyl amine		140	142	123-73-9	Ethane diol dipropionate, 1,2-	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
121-69-7	Dimethyl aniline, N,N-	Dimethyl phenylamine, N,N-	140	146	75-05-8	Ethane nitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-78-5	Dimethyl dichlorosilane		480	480	75-08-1	Ethane thiol	Ethane thiol	500	501
115-10-6	Dimethyl ether		240	241	79-00-5	Ethane trichloride	Ethane trichloride	260	261
68-12-2	Dimethyl formamide, N,N-		130	132	64-17-5	Ethanol	Ethyl alcohol::Spiritus	310	311
624-49-7	Dimethyl fumarate		220	224	141-43-5	Ethanol amine	Amino ethanol, 2-	310	311
57-14-7	Dimethyl hydrazine, N,N-		280	280	141-43-5	Ethanol amine	Amino ethanol, 2-	140	141
67-64-1	Dimethyl ketal	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391	75-36-5	Ethanoyl chloride	Acetic chloride::Ethanoyl chloride	110	111
67-64-1	Dimethyl ketone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391	594-45-6	Ethansulphonic acid		500	504
624-48-6	Dimethyl maleate		220	224	110-80-5	Ethoxy ethanol, 2-	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
593-74-8	Dimethyl mercury in decane		470	470	111-15-9	Ethoxy ethylacetat	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
756-79-6	Dimethyl Methyl Phosphonate		460	462	112-50-5	Ethoxytriglycol		240	245
62-75-9	Dimethyl nitrosamine	Methyl N-nitrosomethanamine, N-	450	450	141-78-6	Ethyl acetate	Acetic acid ethyl ester	220	222
121-69-7	Dimethyl phenylamine, N,N-	Methyl phenylamine, N,N-	140	146	140-88-5	Ethyl acrylate	Acrylic acid ethyl ester	220	223
77-78-1	Dimethyl sulfate	Sulfuric acid dimethyl ester	500	507	64-17-5	Ethyl alcohol	Ethyl alcohol::Spiritus	310	311



APPENDIX
CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
75-04-7	Ethyl amine		140	141
100-41-4	Ethyl benzene	Phenyl ethane	290	292
97-95-0	Ethyl Butanol		310	312
110-80-5	Ethyl Cellosolve®	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
75-00-3	Ethyl chloride		260	261
109-89-7	Ethyl ethanamine, N-	Ethyl ethanamine, N-	140	142
60-29-7	Ethyl ether	Diethyl ether	240	241
111-15-9	Ethyl glycol acetate	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
149-57-5	Ethyl hexanoic acid		100	102
75-08-1	Ethyl mercaptan	Ethane thiol	500	501
75-05-8	Ethyl nitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
56-38-2	Ethyl parathion		460	462
541-41-3	Ethylchloroformate		220	221
541-41-3	Ethylchloroformate		260	260
541-41-3	Ethylchloroformate		110	113
79-10-7	Ethylene carboxylic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
107-07-3	Ethylene chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
107-07-3	Ethylene chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-15-3	Ethylene diamine	Diaminoethane, 1,2-	140	148
106-93-4	Ethylene dibromide	Dibromoethane, 1,2-	260	261
107-06-2	Ethylene dichloride	Ethylene dichloride	260	261
107-21-1	Ethylene glycol	Ethane 1,2-diol::Glycol alcohol	310	314
818-61-1	Ethylene glycol acrylate		220	223
111-15-9	Ethylene glycol mono ethyl ether acetate	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
111-76-2	Ethylene glycol monobutyl ether	Ethylene glycol monobutyl ether	240	245
110-80-5	Ethylene glycol monoethyl ether	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
112-25-4	Ethylene Glycol Monohexyl Ether		240	245
109-86-4	Ethylene glycol monomethyl ether	Ethylene glycol monomethyl ether	240	245
109-86-4	Ethylene glycol monomethyl ether	Ethylene glycol monomethyl ether	310	311
110-49-6	Ethylene glycol monomethyl ether acetate	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245
151-56-4	Ethylene imine	Aziridine	270	274
75-21-8	Ethylene oxide	Epoxy ethane	270	275
127-18-4	Ethylene tetrachloride	Ethylene tetrachloride	260	264
79-01-6	Ethylene trichloride	Ethylene trichloride	260	264
33419-42-0	Etoposide (Toposar®, Teva)		990	991
7758-94-3	Ferric (II) chloride		340	340
7705-08-0	Ferric (III) chloride		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	991
50-00-0	Formaldehyde	Formalin	120	121

CAS Number	Chemical Name	Synonym	Class	Sub-Class
50-00-0	Formalin		120	121
64-18-6	Formic acid		100	102
68476-30-2	Fuel-oil no 2		290	291
98-01-1	Furaldehyde, 2-	Furaldehyde, 2-	270	277
110-00-9	Furan		270	277
98-01-1	Furfural	Furaldehyde, 2-	270	277
82410-32-0	Ganciclovir		990	991
mix	Gasoline, leaded		290	291
86290-81-5	Gasoline, unleaded		290	291
308066-70-8	Gasoline, unleaded E10 (87 Octane)		290	291
95058-81-4	Gemcitabine		990	991
111-30-8	Glutaral	Glutaral::Pentanedial, 1,5-	120	121
111-30-8	Glutaraldehyde	Glutaral::Pentanedial, 1,5-	120	121
56-81-5	Glycerine	Glycerine::Propane -1,2,3-triol	310	314
56-81-5	Glycerol	Glycerine::Propane -1,2,3-triol	310	314
107-21-1	Glycol alcohol	Ethane 1,2-diol::Glycol alcohol	310	314
107-07-3	Glycol chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-07-3	Glycol chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
79-14-1	Glycolic acid	Hydroxy acetic acid	100	103
mix	Green Liquor		590	590
142-82-5	Heptane		290	291
87-68-3	Hexachloro butadiene		260	264
58-89-9	Hexachloro cyclohexane, 1,2,3,4,5,6-	Hexachloro cyclohexane, 1,2,3,4,5,6-	260	261
76-16-4	Hexafluoro ethane	Perfluoroethane	260	261
382-10-5	Hexafluoro isobutylene	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	260	261
108-93-0	Hexalin	Hexalin	310	312
999-97-3	Hexamethyl disilazane	Hexamethyl disilazane, 1,1,1,3,3,3-	480	480
999-97-3	Hexamethyl disilazane, 1,1,1,3,3,3-	Hexamethyl disilazane, 1,1,1,3,3,3-	480	480
124-09-4	Hexamethylene diamine		140	148
822-06-0	Hexamethylene diisocyanate		210	211
110-54-3	Hexane, n-		290	291
108-94-1	Hexanone	Hexanone::Pimelic ketone	390	391
592-41-6	Hexene		290	294
108-10-1	Hexone	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391
112-59-4	Hexyl Carbitol Solvent		240	245
6092-54-2	Hexyl chloro formate, 2-		220	221
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		370	370
7664-39-3	Hydrofluoric acid		370	370
7664-39-3	Hydrofluoric acid		350	350
10035-10-6	Hydrogen bromide		350	350
10035-10-6	Hydrogen bromide		370	370



Chemical	Permeation	Permeation	Permeation
50-00-0 Formalin	Formalin	120	121

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
7647-01-0	Hydrogen chloride		350	350					
7647-01-0	Hydrogen chloride		370	370	1675-54-3	Isopropylidenediphenol diglycidyl ether, 4,4'-	Bis (4-(2,3-epoxypropoxy)phenyl) propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275
74-90-8	Hydrogen cyanide		340	345	50815-00-4	JP-4 Jet Fuel		290	291
74-90-8	Hydrogen cyanide		370	370	94114-58-6	JP-8 Jet Fuel		290	291
74-90-8	Hydrogen cyanide		350	350	8008-20-6	Kerosene		290	291
7664-39-3	Hydrogen fluoride		370	370	67-64-1	Ketone propane	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
7664-39-3	Hydrogen fluoride		350	350	50-21-5	Lactic Acid		100	103
7722-84-1	Hydrogen peroxide		300	301	541-25-3	Lewisite (L), FINABEL 0.7.C		470	470
7783-07-5	Hydrogen selenide		350	350	541-25-3	Lewisite (L), MIL-STD-282		470	470
7783-06-4	Hydrogen sulfide		350	350	5989-27-5	Limonene d-	Methyl 4-isopropenyl-1-cyclohexene, 1-	290	296
7783-06-4	Hydrogen sulfide		500	502	58-89-9	Lindane	Hexachloro cyclohexane, 1,2,3,4,5,6-	260	261
77-92-9	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	100	104	7447-41-8	Lithium chloride		340	340
60-24-2	Hydroxy 1-ethanethiol, 2-	Hydroxy 1-ethanethiol, 2-	310	311	1310-65-2	Lithium hydroxide		380	380
60-24-2	Hydroxy 1-ethanethiol, 2-	Hydroxy 1-ethanethiol, 2-	500	501	8052-41-3	Low boiling point naphtha - unspecified	Low boiling point naphtha - unspecified	290	291
75-86-5	Hydroxy 2-methylpropionitrile, 2-	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	310	313		m-Cresol 55%, p-Cresol 30%, Phenol 15%		310	316
75-86-5	Hydroxy 2-methylpropionitrile, 2-	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	430	431	121-75-5	Malathion		460	462
88-75-5	Hydroxy 2-nitrobenzene, 1-	Hydroxy 2-nitrobenzene, 1-	310	316	108-31-6	Maleic anhydride		160	161
88-75-5	Hydroxy 2-nitrobenzene, 1-	Hydroxy 2-nitrobenzene, 1-	440	442	78-93-3	MEK	Butanone::MEK	390	391
79-14-1	Hydroxy acetic acid	Hydroxy acetic acid	100	103	68-11-1	Mercapto acetic acid	Mercapto acetic acid	100	103
106-48-9	Hydroxy chlorobenzene	Hydroxy chlorobenzene	260	263	68-11-1	Mercapto acetic acid	Mercapto acetic acid	500	501
106-48-9	Hydroxy chlorobenzene	Hydroxy chlorobenzene	310	316	60-24-2	Mercapto ethanol	Hydroxy 1-ethanethiol, 2-	310	311
					60-24-2	Mercapto ethanol	Hydroxy 1-ethanethiol, 2-	500	501
75-86-5	Hydroxy isobutyronitrile	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	430	431	10112-91-1	Mercuric I chloride	Calomel	340	340
75-86-5	Hydroxy isobutyronitrile	Cyanopropan-2-ol, 2-::Hydroxy 2-methylpropionitrile, 2-::Hydroxy isobutyronitrile	310	313	7487-94-7	Mercuric II chloride		340	340
107-18-6	Hydroxy propene	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311	7439-97-6	Mercury		330	330
100-51-6	Hydroxy toluene	Hydroxy toluene	310	312	79-41-4	Methacrylic acid	Methyl propenoic acid, 2-	100	102
95-48-7	Hydroxy toluene, o-	Hydroxy toluene, o-	310	316	124-63-0	Methanesulfonyl chloride		500	505
6303-21-5	Hypophosphorus acid	Phosphinic acid	370	370	75-75-2	Methanesulphonic acid		500	504
3778-73-2	Ilofamide		990	991	74-93-1	Methanethiol	Methanethiol	350	350
7553-56-2	Iodine		330	330	74-93-1	Methanethiol	Methanethiol	500	501
74-88-4	Iodomethane	Iodomethane	260	261	74-93-1	Methanethiol	Methanethiol	380	380
100286-90-6	Irinotecan		990	991	67-56-1	Methanol		310	311
123-92-2	Iso Amyl Acetate		220	222	16752-77-5	Methomyl		230	233
123-51-3	Isoamyl alcohol	Methyl butan-1-ol, 3-	310	312	59-05-2	Methotrexate		990	991
78-83-1	Isobutanol		310	311	1634-04-4	Methoxy 2-methylpropane, 2-	Methoxy 2-methylpropane, 2-	240	241
78-83-1	Isobutanol		310	312	107-30-2	Methoxy chloromethane	Methoxy chloromethane	240	241
108-10-1	Isobutyl methyl ketone	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391	109-86-4	Methoxy ethanol, 2	Ethylene glycol monomethyl ether	240	245
99-63-8	Isophthaloyldichloride		110	112	109-86-4	Methoxy ethanol, 2	Ethylene glycol monomethyl ether	310	311
67-63-0	Isopropanol	Isopropanol::Isopropyl alcohol	310	312	110-49-6	Methoxy ethylacetate, 2-	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245
108-21-4	Isopropyl Acetate		220	222	112-35-6	Methoxytriglycol		240	245
67-63-0	Isopropyl alcohol	Isopropanol::Isopropyl alcohol	310	312	1658-42-0	Methyl -2-pyridyl acetate		220	222
75-31-0	Isopropyl amine	Amino propane, 2-	140	141	4553-62-2	Methyl 1,5-pentantedinitrile, 2-		430	431
98-82-8	Isopropyl benzene	Isopropyl benzene::Phenyl propane, 2-	290	292	80-62-6	Methyl 2-methyl-2-propenoate	Methyl 2-methyl-2-propenoate	220	223
29921-57-1	Isopropyl bromoacetate		220	222	872-50-4	Methyl 2-pyrrolidon, N-		130	132
29921-57-1	Isopropyl bromoacetate		260	260	5989-27-5	Methyl 4-isopropenyl-1-cyclohexene, 1-	Methyl 4-isopropenyl-1-cyclohexene, 1-	290	296
					79-20-9	Methyl Acetate		220	222



DuPont Permeation Guide



Isopropyl bromoacetate	Isopropyl bromoacetate	Isopropyl bromoacetate	Isopropyl bromoacetate
29921-57-1	Isopropyl bromoacetate	110	110



APPENDIX
CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
67-64-1	Methyl acetyl	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
123-73-9	Methyl acrolein	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
96-33-3	Methyl acrylate		220	223
74-89-5	Methyl amine		140	141
95-53-4	Methyl aniline, o-	Methyl aniline, o-	140	145
108-88-3	Methyl benzol	Methyl benzol	290	292
103-67-3	Methyl benzylamine, N-	Methyl benzylamine, N-	290	292
103-67-3	Methyl benzylamine, N-	Methyl benzylamine, N-	140	146
74-83-9	Methyl bromide	Bromo methane	260	261
123-51-3	Methyl butan-1-ol, 3-	Methyl butan-1-ol, 3-	310	312
74-87-3	Methyl chloride		260	261
79-22-1	Methyl chloro formate		110	113
71-55-6	Methyl chloroform	Methyl chloroform::Methyl trichloromethane	260	261
75-05-8	Methyl cyanide	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
78-93-3	Methyl ethyl ketone	Butanone::MEK	390	391
1338-23-4	Methyl Ethyl Ketone Peroxide	Methyl Ethyl Ketone Peroxide	300	300
1338-23-4	Methyl Ethyl Ketone Peroxide	Methyl Ethyl Ketone Peroxide	300	302
96-29-7	Methyl ethyl ketoxime	Butanone oxime, 2-	150	150
593-53-3	Methyl fluoride		260	261
123-39-7	Methyl formamide, N-		130	132
107-31-3	Methyl formate		220	221
60-34-4	Methyl hydrazine		280	280
616-47-7	Methyl imidazole, 1-		270	274
74-88-4	Methyl iodide	Iodomethane	260	261
105-44-2	Methyl Isobutyl Ketoxime		150	150
624-83-9	Methyl isocyanate		210	211
563-80-4	Methyl Isopropyl Ketone		390	391
67-64-1	Methyl ketone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
74-93-1	Methyl mercaptan	Methanethiol	500	501
74-93-1	Methyl mercaptan	Methanethiol	380	380
74-93-1	Methyl mercaptan	Methanethiol	350	350
80-62-6	Methyl methacrylate	Methyl 2-methyl-2-propenoate	220	223
62-75-9	Methyl N-nitrosomethanamine, N-	Methyl N-nitrosomethanamine, N-	450	450
108-10-1	Methyl pentan-2-one, 4-	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391
1319-77-3	Methyl phenols	Cresylic acid::Methyl phenols	310	316
75-65-0	Methyl propan-2-ol, 2-	Methyl propan-2-ol, 2-	310	313
79-41-4	Methyl propenoic acid, 2-	Methyl propenoic acid, 2-	100	102
107-87-9	Methyl Propyl Ketone		390	391
109-06-8	Methyl pyridine, 2-	Methyl pyridine, 2-	270	271
108-99-6	Methyl pyridine, 3-	Methyl pyridine, 3-	270	271
119-36-8	Methyl salicylate		220	226
1634-04-4	Methyl tert-butyl ether	Methoxy 2-methylpropane, 2-	240	241
71-55-6	Methyl trichloromethane	Methyl chloroform::Methyl trichloromethane	260	261
75-79-6	Methyl trichlorosilane		480	480
78-94-4	Methyl vinyl ketone	But-3-en-2-one	390	391

CAS Number	Chemical Name	Synonym	Class	Sub-Class
1761-71-3	Methylen Isocyclohexylamine, 4,4-		140	148
101-14-4	Methylene bis(2-Chloroaniline), 4,4-	Dichloro -4,4'-methylenedianiline, 2,2'-	140	149
74-95-3	Methylene bromide		260	261
75-09-2	Methylene chloride	Methylene chloride	260	261
101-77-9	Methylene dianiline	Diaminodiphenylmethane, 4,4'-	140	149
101-77-9	Methylene dianiline	Diaminodiphenylmethane, 4,4'-	140	145
101-68-8	Methylene diphenyl diisocyanate, 4,4'-	Methylene diphenyl diisocyanate, 4,4'-	210	212
8012-95-1	Mineral oil		290	291
64475-85-0	Mineral spirit		290	291
50-07-7	Mitomycin		990	991
110-91-8	Morpholine	Diethylene imide oxide	270	274
110-91-8	Morpholine	Diethylene imide oxide	270	278
109-02-4	N-Methylmorpholine (NMM)		270	278
109-02-4	N-Methylmorpholine (NMM)		270	274
8032-32-4	Naphtha		290	292
91-20-3	Naphthalene		290	293
13463-39-3	Nickel carbonyl	Tetracarbonylnickel	470	470
54-11-5	Nicotine		270	271
7697-37-2	Nitric acid		370	370
52583-42-3	Nitric acid, red fuming		370	370
10102-43-9	Nitric oxide		350	350
97697-37-4	Nitric/Hydrofluoric Pickling Solution		370	370
98-95-3	Nitro benzene		440	441
76-06-2	Nitro chlormethan	Chloro picrin::Nitro chlormethan	260	261
100-00-5	Nitro chlorobenzene, p-		440	442
100-00-5	Nitro chlorobenzene, p-		260	263
75-52-5	Nitro methane		440	441
88-75-5	Nitro phenol, o-	Hydroxy 2-nitrobenzene, 1-	310	316
88-75-5	Nitro phenol, o-	Hydroxy 2-nitrobenzene, 1-	440	442
79-46-9	Nitro propane, 2-		440	441
88-72-2	Nitro toluene, 2-		440	442
99-99-0	Nitro toluene, p-		440	442
10102-44-0	Nitrogen dioxide		350	350
10102-44-0	Nitrogen Dioxide (liquid)	Nitrogen Dioxide (liquid)	350	350
10544-72-6	Nitrogen tetroxide		350	350
7783-54-2	Nitrogen trifluoride		350	350
8007-56-5	Nitrohydrochloric Acid	Aqua regia	370	370
10024-97-2	Nitrous oxide		350	350
811-97-2	Norflurane	Norflurane	260	261
111-65-9	Octane, n-		290	291
111-87-5	Octanol, n-		310	311
7452-59-7	Octyl chlor formiate		110	113
7452-59-7	Octyl chlor formiate		220	221
112-80-1	Oleic Acid		100	102
8014-95-7	Oleum	Sulfuric acid fuming	370	370





APPENDIX
CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
144-62-7	Oxalic acid	Ethane dioic acid	100	104
63121-00-6	Oxaliplatin		990	991
98-51-1	P-Tert Butyl Toluene		290	292
33069-62-4	Paclitaxel (Hospira)		990	991
104-49-4	Paraphenylene diisocyanate (PPDI) crude		210	212
mix	PCB		260	263
11097-69-1	PCB 1254		260	263
mix	PCB in transformer oil		260	263
7647-18-9	Pentachloroantimony	Pentachloroantimony	360	360
87-86-5	Pentachlorophenol		310	316
109-66-0	Pentane		290	291
111-30-8	Pentanedial, 1,5-	Glutaral::Pentanedial, 1,5-	120	121
109-52-4	Pentanoic acid		290	291
71-41-0	Pentanol, 1-	Amyl alcohol	310	311
75-85-4	Pentanol, tert-	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313
13284-42-9	Pentene nitrile, 2-		430	431
4635-87-4	Pentene nitrile, 3-		430	431
25899-50-7	Pentene nitrile, cis-2-		430	431
628-63-7	Pentyl acetate	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
79-21-0	Peracetic Acid		300	302
79-21-0	Peracetic Acid		100	102
79-21-0	Peracetic Acid	Peracetic Acid	300	302
79-21-0	Peracetic Acid	Peracetic Acid	300	300
7601-90-3	Perchloric acid		370	370
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		110	111
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		240	241
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		260	261
76-16-4	Perfluoroethane	Perfluoroethane	260	261
60-12-8	Phenethyl alcohol, 2-		310	318
100-42-5	Phenethylene	Phenethylene::Vinyl benzol	290	292
108-95-2	Phenol		310	316
140-29-4	Phenyl acetone nitrile	Phenyl acetone nitrile	430	432
62-53-3	Phenyl amine	Amino benzene::Benzenamine::Phenyl amine	140	145
1885-14-9	Phenyl chlor formate		220	221
108-90-7	Phenyl chloride	Phenyl chloride	260	263
100-47-0	Phenyl cyanide	Cyanobenzene::Phenyl cyanide	430	432
100-41-4	Phenyl ethane	Phenyl ethane	290	292
98-85-1	Phenyl ethanol, 1-		310	318
122-60-1	Phenyl glycidyl ether		270	275
108-98-5	Phenyl mercaptan	Benzene thiol	500	501
98-82-8	Phenyl propane, 2-	Isopropyl benzene::Phenyl propane, 2-	290	292
98-13-5	Phenyl trichlorosilane	Phenyl trichlorosilane	480	480
75-44-5	Phosgene		350	350
7803-51-2	Phosphine		350	350
6303-21-5	Phosphinic acid	Phosphinic acid	370	370

CAS Number	Chemical Name	Synonym	Class	Sub-Class
7664-38-2	Phosphoric acid		370	370
10025-87-3	Phosphorus oxychloride		360	360
7719-12-2	Phosphorus trichloride		360	360
109-06-8	Picoline, 2-	Methyl pyridine, 2-	270	271
108-99-6	Picoline, 3-	Methyl pyridine, 3-	270	271
108-94-1	Pimelic ketone	Hexanone::Pimelic ketone	390	391
24991-55-7	Polyethylene glycol dimethyl ether		240	245
9016-87-9	Polymethylene polyphenyle isocyanate (p-MDI)		210	212
127-08-2	Potassium acetate		340	340
584-08-7	Potassium carbonate		340	340
7789-00-6	Potassium chromate		340	340
151-50-8	Potassium cyanide		340	345
1310-58-3	Potassium hydroxide		380	380
7722-64-7	Potassium permanganate		340	340
107-02-8	Prop-2-en-1-al	Prop-2-en-1-al	120	121
107-19-7	Prop-2-yn-1-ol	Prop-2-yn-1-ol	310	311
71-23-8	Propan -1-ol	Propanol, 1::Propanol, n::Propyl alcohol	310	311
67-63-0	Propan -2-ol	Isopropanol::Isopropyl alcohol	310	312
67-64-1	Propan -2-one	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
74-98-6	Propane		290	291
56-81-5	Propane -1,2,3-triol	Glycerine::Propane -1,2,3-triol	310	314
79-09-4	Propanoic acid		100	102
71-23-8	Propanol, 1-	Propanol, 1::Propanol, n::Propyl alcohol	310	311
71-23-8	Propanol, n-	Propanol, 1::Propanol, n::Propyl alcohol	310	311
107-19-7	Propargyl alcohol	Prop-2-yn-1-ol	310	311
107-18-6	Propen 1-ol, 2-	Hydroxy propene::Propen 1-ol, 2::Vinyl carbinol	310	311
79-06-1	Propenamide	Acrylicamide::Propenamide	130	135
79-10-7	Propene acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
107-13-1	Propenenitrile, 2-	Cyanoethylene::Propenenitrile, 2::Propenoic acid nitrile::Vinyl cyanide	430	431
141-32-2	Propenoic acid butyl ester, 2-	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223
107-13-1	Propenoic acid nitrile	Cyanoethylene::Propenenitrile, 2::Propenoic acid nitrile::Vinyl cyanide	430	431
1569-01-3	Propoxypropanol		240	245
109-61-5	Propylchloroformate		110	113
109-61-5	Propylchloroformate		220	221
109-61-5	Propylchloroformate		260	260
109-60-4	Propyl Acetate		220	222
71-23-8	Propyl alcohol	Propanol, 1::Propanol, n::Propyl alcohol	310	311
107-10-8	Propyl amine, n-		140	141
106-94-5	Propyl bromide, n-		260	261
2807-30-9	Propyl Cellosolve, n-		240	245
123-73-9	Propylene aldehyde	Butenal, 2::Ethane diol dipropionate, 1,2::Methyl acrolein::Propylene aldehyde	120	121
78-87-5	Propylene dichloride		260	261
57-55-6	Propylene Glycol		310	314
75-55-8	Propylene imine		270	274
75-56-9	Propylene oxide, 1,2-	Epoxy propane, 1,2-	270	275

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
94239-04-0	Pyridene, 2-fluoro-6-(trifluoromethyl)		270	271	8014-95-7	Sulfuric acid fuming	Sulfuric acid fuming	370	370
110-86-1	Pyridine		270	271	10545-99-0	Sulphur dichloride	Sulphur dichloride	500	502
67-64-1	Pyroacetic ether	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391	mix	t-Sodium-amylate / t-amyl alcohol		590	590
123-75-1	Pyrrolidine	Azolidine	270	274	77-81-6	Tabun (GA), FINABEL 0.7.C		460	462
1717-00-6	Refrigerant 141B		260	261	77-81-6	Tabun (GA), MIL-STD-282		460	462
31218-83-4	Safrotin		460	462	75-91-2	Tert-Butyl Hydroperoxide	Tert-Butyl Hydroperoxide	300	300
107-44-8	Sarin (GB), MIL-STD-282		460	462	75-91-2	Tert-Butyl Hydroperoxide	Tert-Butyl Hydroperoxide	300	302
7803-62-5	Silane		480	480	13463-39-3	Tetracarbonylnickel	Tetracarbonylnickel	470	470
10026-04-7	Silicon tetrachloride		360	360	79-95-8	Tetrachloro bisphenol-A, 2,2',6,6'-		310	316
10026-04-7	Silicon tetrachloride		480	480	79-95-8	Tetrachloro bisphenol-A, 2,2',6,6'-		260	263
mix	Skydrol 4D	Skydrol 4D	590	590	79-34-5	Tetrachloro ethane, 1,1,2,2,-		260	261
mix	Skydrol 5	Skydrol 5	590	590	127-18-4	Tetrachloro ethylene, 1,1,2,2,-	Ethylene tetrachloride	260	264
126-73-8	Skydrol 500 B-4		460	462	56-23-5	Tetrachloro methane	Tetrachloro methane	260	261
mix	Skydrol PE-5	Skydrol PE-5	590	590	78-10-4	Tetraethoxysilane		480	480
127-09-3	Sodium acetate		550	550	77-98-5	Tetraethyl ammonium hydroxide		550	550
7631-90-5	Sodium bisulphite		500	507	77-98-5	Tetraethyl ammonium hydroxide		150	150
7647-14-5	Sodium chloride		990	991	78-00-2	Tetraethyl lead		470	470
143-33-9	Sodium cyanide		340	345	112-57-2	Tetraethylene pentamine		140	148
7681-49-4	Sodium fluoride		340	340	112-57-2	Tetraethylene pentamine		140	141
1310-73-2	Sodium hydroxide	Caustic soda	380	380	811-97-2	Tetrafluoroethane, 1,1,1,2,-	Norflurane	260	261
7681-52-9	Sodium hypochlorite		340	340	75-73-0	Tetrafluoromethane	Carbon tetrafluoride	260	261
7681-57-4	Sodium metabisulphite		340	340	109-99-9	Tetrahydrofuran		270	277
124-41-4	Sodium methylate		550	550	75-59-2	Tetramethyl ammonium hydroxide		550	550
6834-92-0	Sodium silicate		340	340	594-27-4	Tetramethyl tin		470	470
96-64-0	Soman (GD), FINABEL 0.7.C		460	462	110-18-9	Tetramethylethylene diamine (TMEDA)		140	148
96-64-0	Soman (GD), MIL-STD-282		460	462	288-47-1	Thiazol, 1,3,-		270	274
mix	Spectracide® (50% Malathion, 44% Aromatic Solvent)	Spectracide® (50% Malathion, 44% Aromatic Solvent)	590	590	68-11-1	Thioglycolic acid	Mercapto acetic acid	500	501
64-17-5	Spiritus	Ethyl alcohol::Spiritus	310	311	68-11-1	Thioglycolic acid	Mercapto acetic acid	100	103
8052-41-3	Stoddard solvent	Low boiling point naphtha - unspecified	290	291	7719-09-7	Thionyl chloride		360	360
100-42-5	Styrene	Phenethylene::Vinyl benzol	290	292	52-24-4	Thiotepa		990	991
5329-14-6	Sulfamic acid	Amido sulfonic acid::Sulfamidic acid	500	509	1118-46-3	Tin chloride, mono-n-butyl	Butyl stannium trichloride	470	470
5329-14-6	Sulfamic acid	Amido sulfonic acid::Sulfamidic acid	370	370	1461-22-9	Tin chloride, tri-n-butyl		470	470
5329-14-6	Sulfamidic acid	Amido sulfonic acid::Sulfamidic acid	500	509	7550-45-0	Titan(IV) chloride	Titan(IV) chloride	360	360
5329-14-6	Sulfamidic acid	Amido sulfonic acid::Sulfamidic acid	370	370	7550-45-0	Titanium tetrachloride	Titan(IV) chloride	360	360
7446-09-5	Sulfur dioxide		360	365	108-88-3	Toluene	Methyl benzol	290	292
7446-09-5	Sulfur dioxide		350	350	26471-62-5	Toluene diisocyanate, 1,3,-		210	212
2551-62-4	Sulfur hexafluoride		350	350	584-84-9	Toluene diisocyanate, 2,4,-		210	212
2551-62-4	Sulfur hexafluoride		500	509	108-44-1	Toluidine, m-		140	145
10025-67-9	Sulfur monochloride	Disulphur dichloride	500	502	95-53-4	Toluidine, o-	Methyl aniline, o-	140	145
505-60-2	Sulfur Mustard (HD), FINABEL 0.7.C		500	502	102-82-9	Tributyl amine		140	148
505-60-2	Sulfur Mustard (HD), MIL-STD-282		500	502	102-82-9	Tributyl amine		140	143
7446-11-9	Sulfur trioxide		360	365	75-94-5	Trichlor vinylsilane		480	480
7664-93-9	Sulfuric acid		370	370	76-13-1	Trichloro 1,2,2-trifluoroethane, 1,1,2,-		260	261
64-67-5	Sulfuric acid diethyl ester	Sulfuric acid diethyl ester	500	507	108-77-0	Trichloro 1,3,5-triazine, 2,4,6,-	Trichloro 1,3,5-triazine, 2,4,6,-	260	263
77-78-1	Sulfuric acid dimethyl ester	Sulfuric acid dimethyl ester	500	507	108-77-0	Trichloro 1,3,5-triazine, 2,4,6,-	Trichloro 1,3,5-triazine, 2,4,6,-	270	274

APPENDIX
CHEMICAL INDEX - Alphabetical Listing - Chemical Names and Synonyms

CAS Number	Chemical Name	Synonym	Class	Sub-Class
76-03-9	Trichloro acetic acid		100	103
921-03-9	Trichloro acetone, 1,1,3-		260	261
921-03-9	Trichloro acetone, 1,1,3-		390	391
120-82-1	Trichloro benzene, 1,2,4-		260	263
71-55-6	Trichloro ethane, 1,1,1,-	Methyl chloroform::Methyl trichloromethane	260	261
79-00-5	Trichloro ethane, 1,1,2-	Ethane trichloride	260	261
115-20-8	Trichloro ethanol, 2,2,2-		310	315
79-01-6	Trichloro ethylene	Ethylene trichloride	260	264
67-66-3	Trichloro methane	Trichloro methane	260	261
98-13-5	Trichloro phenylsilane	Phenyl trichlorosilane	480	480
10025-78-2	Trichloro silane		480	480
102-71-6	Triethanolamine		140	143
97-93-8	Triethyl aluminum		470	470
121-44-8	Triethyl amine	Diethyl ethanamine, N,N-	140	143
78-40-0	Triethyl Phosphate		460	462
112-24-3	Triethylenetetramine		140	141
112-24-3	Triethylenetetramine		140	148
98-08-8	Trifluoromethylbenzene		260	263
382-10-5	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	260	261
76-05-1	Trifluoro acetic acid		260	261
76-05-1	Trifluoro acetic acid		100	103
75-89-8	Trifluoro ethanol, 2,2,2-		310	315
75-46-7	Trifluoro methane		260	261
1493-13-6	Trifluoro methanesulfonic acid		500	504
75-50-3	Trimethyl amine		140	143
75-64-9	Trimethyl aminomethane	Amino 2-methylpropane, 2-::Trimethyl aminomethane	140	143
512-56-1	Trimethyl phosphate		460	462
121-45-9	Trimethyl phosphite		460	462
102-69-2	Tripropyl amine		140	143
7783-82-6	Tungsten hexafluoride		350	350
8006-64-2	Turpentine		290	296
8006-64-2	Turpentine		290	294
83016-70-0	Urethane Catalyst Alkanol		240	245
7632-51-1	Vanadium tetrachloride		360	360
2068-78-2	Vincristine sulfate		990	991
71486-22-1	Vinorelbine		990	991
108-05-4	Vinyl acetate	Acetic acid ethenyl ester	220	222
100-42-5	Vinyl benzol	Phenethylene::Vinyl benzol	290	292
107-18-6	Vinyl carbinol	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311
75-01-4	Vinyl chloride	Chloro ethene	260	264
107-13-1	Vinyl cyanide	Cyanoethylene::Propenenitrile, 2-::Propenoic acid nitrile::Vinyl cyanide	430	431
106-99-0	Vinyl ethylene	Vinyl ethylene	290	296
3536-96-7	Vinyl magnesium chloride		470	470
100-43-6	Vinyl pyridine, 4-		270	271
88-12-0	Vinyl Pyrrolidinone		270	274

CAS Number	Chemical Name	Synonym	Class	Sub-Class
75-35-4	Vinylidene chloride	Dichloro ethylene, 1,1,-	260	264
8030-30-6	VM & P Naphtha		290	291
50782-69-9	VX Nerve Agent, FINABEL 0.7.C		460	462
50782-69-9	VX Nerve Agent, MIL-STD-282		460	462
mix	White Liquor		590	590
mix	White spirit		290	291
1330-20-7	Xylene, mixed isomers		290	292
95-47-6	Xylene, o-		290	292
95-68-1	Xylidine, 2,4-		140	145

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
50-00-0	Formaldehyde	Formalin	120	121
50-00-0	Formalin	Formalin	120	121
50-00-0	Formalin		120	121
50-07-7	Mitomycin		990	991
50-18-0	Cyclo phosphamide		990	991
50-21-5	Lactic Acid		100	103
51-21-8	Fluorouracil, 5-		990	991
52-24-4	Thiotepa		990	991
54-11-5	Nicotine		270	271
56-23-5	Carbon tetrachloride	Tetrachloro methane	260	261
56-23-5	Tetrachloro methane	Tetrachloro methane	260	261
56-38-2	Ethyl parathion		460	462
56-81-5	Glycerine	Glycerine::Propane -1,2,3-triol	310	314
56-81-5	Glycerol	Glycerine::Propane -1,2,3-triol	310	314
56-81-5	Propane -1,2,3-triol	Glycerine::Propane -1,2,3-triol	310	314
57-14-7	Dimethyl hydrazine, N,N-		280	280
57-55-6	Propylene Glycol		310	314
57-74-9	Chlordane		260	261
58-89-9	Hexachloro cyclohexane, 1,2,3,4,5,6-	Hexachloro cyclohexane, 1,2,3,4,5,6-	260	261
58-89-9	Lindane	Hexachloro cyclohexane, 1,2,3,4,5,6-	260	261
59-05-2	Methotrexate		990	991
60-12-8	Phenethyl alcohol, 2-		310	318
60-24-2	Hydroxy 1-ethanethiol, 2-	Hydroxy 1-ethanethiol, 2-	500	501
60-24-2	Hydroxy 1-ethanethiol, 2-	Hydroxy 1-ethanethiol, 2-	310	311
60-24-2	Mercapto ethanol	Hydroxy 1-ethanethiol, 2-	500	501
60-24-2	Mercapto ethanol	Hydroxy 1-ethanethiol, 2-	310	311
60-29-7	Diethyl ether	Diethyl ether	240	241
60-29-7	Ethyl ether	Diethyl ether	240	241
60-34-4	Methyl hydrazine		280	280
62-53-3	Amino benzene	Amino benzene::Benzenamine::Phenyl amine	140	145
62-53-3	Aniline	Amino benzene::Benzenamine::Phenyl amine	140	145
62-53-3	Benzenamine	Amino benzene::Benzenamine::Phenyl amine	140	145
62-53-3	Phenyl amine	Amino benzene::Benzenamine::Phenyl amine	140	145
62-75-9	Dimethyl nitrosamine	Methyl N-nitrosomethanamine, N-	450	450
62-75-9	Methyl N-nitrosomethanamine, N-	Methyl N-nitrosomethanamine, N-	450	450
64-17-5	Ethanol	Ethyl alcohol::Spiritus	310	311
64-17-5	Ethyl alcohol	Ethyl alcohol::Spiritus	310	311
64-17-5	Spiritus	Ethyl alcohol::Spiritus	310	311
64-18-6	Formic acid		100	102
64-19-7	Acetic acid		100	102
64-67-5	Diethyl sulfate	Sulfuric acid diethyl ester	500	507
64-67-5	Sulfuric acid diethyl ester	Sulfuric acid diethyl ester	500	507
67-56-1	Methanol		310	311
67-63-0	Isopropanol	Isopropanol::Isopropyl alcohol	310	312
67-63-0	Isopropyl alcohol	Isopropanol::Isopropyl alcohol	310	312

CAS Number	Chemical Name	Synonym	Class	Sub-Class
67-63-0	Propan -2-ol	Isopropanol::Isopropyl alcohol	310	312
67-64-1	Acetone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Dimethyl ketal	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Dimethyl ketone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Ketone propane	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Methyl acetyl	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Methyl ketone	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Propan -2-one	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-64-1	Pyroacetic ether	Dimethyl ketal::Dimethyl ketone::Ketone propane::Methyl acetyl::Methyl ketone::Propan -2-one::Pyroacetic ether	390	391
67-66-3	Chloro form	Trichloro methane	260	261
67-66-3	Trichloro methane	Trichloro methane	260	261
67-68-5	Dimethyl sulfoxide		500	503
68-11-1	Mercapto acetic acid	Mercapto acetic acid	100	103
68-11-1	Mercapto acetic acid	Mercapto acetic acid	500	501
68-11-1	Thioglycolic acid	Mercapto acetic acid	500	501
68-11-1	Thioglycolic acid	Mercapto acetic acid	100	103
68-12-2	Dimethyl formamide, N,N-		130	132
71-23-8	Propan -1-ol	Propanol, 1-::Propanol, n-::Propyl alcohol	310	311
71-23-8	Propanol, 1-	Propanol, 1-::Propanol, n-::Propyl alcohol	310	311
71-23-8	Propanol, n-	Propanol, 1-::Propanol, n-::Propyl alcohol	310	311
71-23-8	Propyl alcohol	Propanol, 1-::Propanol, n-::Propyl alcohol	310	311
71-36-3	Butanol, 1-	Butanol, n-::Butyl alcohol, n-	310	311
71-36-3	Butanol, n-	Butanol, n-::Butyl alcohol, n-	310	311
71-36-3	Butyl alcohol, n-	Butanol, n-::Butyl alcohol, n-	310	311
71-41-0	Amyl alcohol	Amyl alcohol	310	311
71-41-0	Pentanol, 1-	Amyl alcohol	310	311
71-43-2	Benzene		290	292
71-55-6	Methyl chloroform	Methyl chloroform::Methyl trichloromethane	260	261
71-55-6	Methyl trichloromethane	Methyl chloroform::Methyl trichloromethane	260	261
71-55-6	Trichloro ethane, 1,1,1-	Methyl chloroform::Methyl trichloromethane	260	261
74-83-9	Bromo methane	Bromo methane	260	261
74-83-9	Methyl bromide	Bromo methane	260	261
74-87-3	Methyl chloride		260	261
74-88-4	Iodomethane	Iodomethane	260	261
74-88-4	Methyl iodide	Iodomethane	260	261
74-89-5	Methyl amine		140	141
74-90-8	Hydrogen cyanide		340	345
74-90-8	Hydrogen cyanide		370	370

74-90-8 Hydrogen cyanide		350	350
74-93-1 Methanethiol	Methanethiol	380	380
74-93-1 Methanethiol	Methanethiol	350	350
74-93-1 Methanethiol	Methanethiol	500	501
74-93-1 Methyl mercaptan	Methanethiol	500	501
74-93-1 Methyl mercaptan	Methanethiol	350	350
74-93-1 Methyl mercaptan	Methanethiol	380	380

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
74-95-3	Methylene bromide		260	261
74-98-6	Propane		290	291
75-00-3	Ethyl chloride		260	261
75-01-4	Chloro ethene	Chloro ethene	260	264
75-01-4	Vinyl chloride	Chloro ethene	260	264
75-04-7	Ethyl amine		140	141
75-05-8	Acetonitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-05-8	Cyanomethane	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-05-8	Ethane nitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-05-8	Ethyl nitrile	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-05-8	Methyl cyanide	Cyanomethane::Ethane nitrile::Ethyl nitrile::Methyl cyanide	430	431
75-07-0	Acetaldehyde		120	121
75-08-1	Ethane thiol	Ethane thiol	500	501
75-08-1	Ethyl mercaptan	Ethane thiol	500	501
75-09-2	Dichloro methane	Methylene chloride	260	261
75-09-2	Methylene chloride	Methylene chloride	260	261
75-15-0	Carbon disulfide		500	502
75-18-3	Dimethyl sulfide		500	502
75-21-8	Epoxy ethane	Epoxy ethane	270	275
75-21-8	Ethylene oxide	Epoxy ethane	270	275
75-25-2	Bromoform		260	261
75-31-0	Amino propane, 2-	Amino propane, 2-	140	141
75-31-0	Isopropyl amine	Amino propane, 2-	140	141
75-35-4	Dichloro ethylene, 1,1-	Dichloro ethylene, 1,1-	260	264
75-35-4	Vinylidene chloride	Dichloro ethylene, 1,1-	260	264
75-36-5	Acetic chloride	Acetic chloride::Ethanoyl chloride	110	111
75-36-5	Acetyl chloride	Acetic chloride::Ethanoyl chloride	110	111
75-36-5	Ethanoyl chloride	Acetic chloride::Ethanoyl chloride	110	111
75-44-5	Phosgene		350	350
75-46-7	Trifluoro methane		260	261
75-50-3	Trimethyl amine		140	143
75-52-5	Nitro methane		440	441
75-55-8	Propylene imine		270	274
75-56-9	Epoxy propane, 1,2-	Epoxy propane, 1,2-	270	275
75-56-9	Propylene oxide, 1,2-	Epoxy propane, 1,2-	270	275
75-59-2	Tetramethyl ammonium hydroxide		550	550
75-64-9	Amino 2-methylpropane, 2-	Amino 2-methylpropane, 2::Trimethyl aminomethane	140	143
75-64-9	Butyl amine, tert-	Amino 2-methylpropane, 2::Trimethyl aminomethane	140	143
75-64-9	Trimethyl aminomethane	Amino 2-methylpropane, 2::Trimethyl aminomethane	140	143
75-65-0	Butanol, tert-	Methyl propan-2-ol, 2-	310	313
75-65-0	Methyl propan-2-ol, 2-	Methyl propan-2-ol, 2-	310	313
75-73-0	Carbon tetrafluoride	Carbon tetrafluoride	260	261
75-73-0	Tetrafluoromethane	Carbon tetrafluoride	260	261
75-75-2	Methanesulphonic acid		500	504
75-78-5	Dimethyl dichlorosilane		480	480

CAS Number	Chemical Name	Synonym	Class	Sub-Class
75-79-6	Methyl trichlorosilane		480	480
75-85-4	2-Methyl-2-Butanol	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313
75-85-4	Amyl alcohol, tert-	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313
75-85-4	Pentanol, tert-	2-Methyl-2-Butanol::Amyl alcohol, tert-	310	313
75-86-5	Acetone cyanohydrin	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	310	313
75-86-5	Acetone cyanohydrin	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	430	431
75-86-5	Cyanopropan-2-ol, 2-	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	310	313
75-86-5	Cyanopropan-2-ol, 2-	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	430	431
75-86-5	Hydroxy 2-methylpropionitrile, 2-	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	310	313
75-86-5	Hydroxy 2-methylpropionitrile, 2-	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	430	431
75-86-5	Hydroxy isobutyronitrile	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	310	313
75-86-5	Hydroxy isobutyronitrile	Cyanopropan-2-ol, 2::Hydroxy 2-methylpropionitrile, 2::Hydroxy isobutyronitrile	430	431
75-89-8	Trifluoro ethanol, 2,2,2-		310	315
75-91-2	Tert-Butyl Hydroperoxide	Tert-Butyl Hydroperoxide	300	302
75-91-2	Tert-Butyl Hydroperoxide	Tert-Butyl Hydroperoxide	300	300
75-94-5	Trichlor vinylsilane		480	480
76-03-9	Trichloro acetic acid		100	103
76-05-1	Trifluoro acetic acid		260	261
76-05-1	Trifluoro acetic acid		100	103
76-06-2	Chloro trinitromethan	Chloro picrin::Nitro chlormethan	260	261
76-06-2	Chloro picrin	Chloro picrin::Nitro chlormethan	260	261
76-06-2	Nitro chlormethan	Chloro picrin::Nitro chlormethan	260	261
76-13-1	Trichloro 1,2,2-trifluoroethane, 1,1,2-		260	261
76-16-4	Hexafluoro ethane	Perfluoroethane	260	261
76-16-4	Perfluoroethane	Perfluoroethane	260	261
77-78-1	Dimethyl sulfate	Sulfuric acid dimethyl ester	500	507
77-78-1	Sulfuric acid dimethyl ester	Sulfuric acid dimethyl ester	500	507
77-81-6	Tabun (GA), FINABEL 0.7.C		460	462
77-81-6	Tabun (GA), MIL-STD-282		460	462
77-92-9	Citric acid	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	100	104
77-92-9	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	Hydroxy 1,2,3-propanetricarboxylic acid, 2-	100	104
77-98-5	Tetraethyl ammonium hydroxide		550	550
77-98-5	Tetraethyl ammonium hydroxide		150	150
78-00-2	Tetraethyl lead		470	470
78-10-4	Tetraethoxysilane		480	480
78-40-0	Triethyl Phosphate		460	462
78-83-1	Isobutanol		310	311
78-83-1	Isobutanol		310	312
78-87-5	Proylene dichloride		260	261

78-88-6	Dichloro propene, 2,3-		260	261
78-93-3	Butanone	Butanone::MEK	390	391
78-93-3	MEK	Butanone::MEK	390	391
78-93-3	Methyl ethyl ketone	Butanone::MEK	390	391
78-94-4	But-3-en-2-one	But-3-en-2-one	390	391
78-94-4	Methyl vinyl ketone	But-3-en-2-one	390	391

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
78-95-5	Chloro acetone	Chloro propan-2-one, 1-	390	391
78-95-5	Chloro propan-2-one, 1-	Chloro propan-2-one, 1-	390	391
79-00-5	Ethane trichloride	Ethane trichloride	260	261
79-00-5	Trichloro ethane, 1,1,2-	Ethane trichloride	260	261
79-01-6	Ethylene trichloride	Ethylene trichloride	260	264
79-01-6	Trichloro ethylene	Ethylene trichloride	260	264
79-04-9	Chloro acetyl chloride		110	111
79-06-1	Acrylamide	Acrylicamide::Propenamide	130	135
79-06-1	Acrylicamide	Acrylicamide::Propenamide	130	135
79-06-1	Propenamide	Acrylicamide::Propenamide	130	135
79-09-4	Propanoic acid		100	102
79-10-7	Acroleic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
79-10-7	Acrylic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
79-10-7	Ethylene carboxylic acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
79-10-7	Propene acid	Acroleic acid::Ethylene carboxylic acid::Propene acid	100	102
79-11-8	Chloro acetic acid		100	103
79-14-1	Glycolic acid	Hydroxy acetic acid	100	103
79-14-1	Hydroxy acetic acid	Hydroxy acetic acid	100	103
79-20-9	Methyl Acetate		220	222
79-21-0	Peracetic Acid	Peracetic Acid	300	302
79-21-0	Peracetic Acid	Peracetic Acid	300	300
79-21-0	Peracetic Acid		100	102
79-21-0	Peracetic Acid		300	302
79-22-1	Methyl chloro formate		110	113
79-34-5	Tetrachloro ethane, 1,1,2,2,-		260	261
79-36-7	Dichloro acetyl chloride		110	111
79-41-4	Methacrylic acid	Methyl propenoic acid, 2-	100	102
79-41-4	Methyl propenoic acid, 2-	Methyl propenoic acid, 2-	100	102
79-46-9	Nitro propane, 2-		440	441
79-95-8	Tetrachloro bisphenol-A, 2,2',6,6'-		310	316
79-95-8	Tetrachloro bisphenol-A, 2,2',6,6'-		260	263
80-62-6	Methyl 2-methyl-2-propenoate	Methyl 2-methyl-2-propenoate	220	223
80-62-6	Methyl methacrylate	Methyl 2-methyl-2-propenoate	220	223
84-74-2	Dibutyl 1,2-benzenedicarboxylate	Dibutyl 1,2-benzenedicarboxylate	220	226
84-74-2	Dibutyl phthalate	Dibutyl 1,2-benzenedicarboxylate	220	226
87-68-3	Hexachloro butadiene		260	264
87-86-5	Pentachlorophenol		310	316
88-12-0	Vinyl Pyrrolidinone		270	274
88-72-2	Nitro toluene, 2-		440	442
88-73-3	Chloro 2-nitrobenzene, 1-	Chloro 2-nitrobenzene, 1-	440	442
88-73-3	Chloro 2-nitrobenzene, 1-	Chloro 2-nitrobenzene, 1-	260	263
88-75-5	Hydroxy 2-nitrobenzene, 1-	Hydroxy 2-nitrobenzene, 1-	440	442
88-75-5	Hydroxy 2-nitrobenzene, 1-	Hydroxy 2-nitrobenzene, 1-	310	316
88-75-5	Nitro phenol, o-	Hydroxy 2-nitrobenzene, 1-	310	316
88-75-5	Nitro phenol, o-	Hydroxy 2-nitrobenzene, 1-	440	442

CAS Number	Chemical Name	Synonym	Class	Sub-Class
91-20-3	Naphthalene		290	293
91-66-7	Diethyl aniline crude		140	146
91-66-7	Diethyl aniline, N,N-		140	146
91-67-8	Diethyl m-toluidine, N,N-		140	145
92-67-1	Amino diphenyl, 4-		140	145
92-87-5	Benzidine	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
92-87-5	Benzidine	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
92-87-5	Biphenyl 4,4'-diamine, 1,1'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
92-87-5	Biphenyl 4,4'-diamine, 1,1'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
92-87-5	Diaminobiphenyl, 4,4'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
92-87-5	Diaminobiphenyl, 4,4'-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
92-87-5	Diaminodiphenyl, p-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	145
92-87-5	Diaminodiphenyl, p-	Biphenyl 4,4'-diamine, 1,1'-::Diaminobiphenyl, 4,4'-::Diaminodiphenyl, p-	140	149
95-47-6	Xylene, o-		290	292
95-48-7	Cresol o-	Hydroxy toluene, o-	310	316
95-48-7	Hydroxy toluene, o-	Hydroxy toluene, o-	310	316
95-49-8	Chloro 1-methylbenzene, 2-	Chloro 1-methylbenzene, 2-	260	263
95-49-8	Chloro 1-methylbenzene, 2-	Chloro 1-methylbenzene, 2-	310	316
95-49-8	Chloro toluene, o-	Chloro 1-methylbenzene, 2-	310	316
95-49-8	Chloro toluene, o-	Chloro 1-methylbenzene, 2-	260	263
95-50-1	Dichlorobenzen, 1,2-		260	263
95-53-4	Methyl aniline, o-	Methyl aniline, o-	140	145
95-53-4	Toluidine, o-	Methyl aniline, o-	140	145
95-68-1	Xylidine, 2,4-		140	145
95-76-1	Amino 3,4-dichlorobenzene, 1-	Amino 3,4-dichlorobenzene, 1-	260	263
95-76-1	Amino 3,4-dichlorobenzene, 1-	Amino 3,4-dichlorobenzene, 1-	140	145
95-76-1	Dichloro aniline, 3,4-	Amino 3,4-dichlorobenzene, 1-	260	263
95-76-1	Dichloro aniline, 3,4-	Amino 3,4-dichlorobenzene, 1-	140	145
96-12-8	Dibromo -3-chloropropane, 1,2-		260	261
96-24-2	Chloro 1,2-propanediol, 3-		310	314
96-29-7	Butanone oxime, 2-	Butanone oxime, 2-	150	150
96-29-7	Methyl ethyl ketoxime	Butanone oxime, 2-	150	150
96-33-3	Methyl acrylate		220	223
96-64-0	Soman (GD), FINABEL 0.7.C		460	462
96-64-0	Soman (GD), MIL-STD-282		460	462
97-93-8	Triethyl aluminum		470	470
97-95-0	Ethyl Butanol		310	312
98-01-1	Furaldehyde, 2-	Furaldehyde, 2-	270	277
98-01-1	Furfural	Furaldehyde, 2-	270	277
98-07-7	Benzo trichloride		260	263

98-07-9	Benzene trichlorosilane		260	263
98-08-8	Trifluoromethylbenzene			
98-09-9	Benzene sulfone chloride	Benzene sulfone chloride	500	505
98-09-9	Benzene sulfonyl chloride	Benzene sulfone chloride	500	505
98-13-5	Phenyl trichlorosilane	Phenyl trichlorosilane	480	480
98-13-5	Trichloro phenylsilane	Phenyl trichlorosilane	480	480

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
98-51-1	P-Tert Butyl Toluene		290	292
98-56-6	Chloro benzotrifluoride, 4-		260	263
98-82-8	Cumene	Isopropyl benzene::Phenyl propane, 2-	290	292
98-82-8	Isopropyl benzene	Isopropyl benzene::Phenyl propane, 2-	290	292
98-82-8	Phenyl propane, 2-	Isopropyl benzene::Phenyl propane, 2-	290	292
98-85-1	Phenyl ethanol, 1-		310	318
98-88-4	Benzene carbonyl chloride	Benzene carbonyl chloride	110	112
98-88-4	Benzoyl chloride	Benzene carbonyl chloride	110	112
98-95-3	Nitro benzene		440	441
99-63-8	Isophthaloyldichloride		110	112
99-99-0	Nitro toluene, p-		440	442
100-00-5	Nitro chlorobenzene, p-		440	442
100-00-5	Nitro chlorobenzene, p-		260	263
100-41-4	Ethyl benzene	Phenyl ethane	290	292
100-41-4	Phenyl ethane	Phenyl ethane	290	292
100-42-5	Phenethylene	Phenethylene::Vinyl benzol	290	292
100-42-5	Styrene	Phenethylene::Vinyl benzol	290	292
100-42-5	Vinyl benzol	Phenethylene::Vinyl benzol	290	292
100-43-6	Vinyl pyridine, 4-		270	271
100-44-7	Benzyl chloride	Chloro toluene, alpha-	260	266
100-44-7	Chloro toluene, alpha-	Chloro toluene, alpha-	260	266
100-47-0	Benzo nitrile	Cyanobenzene::Phenyl cyanide	430	432
100-47-0	Cyanobenzene	Cyanobenzene::Phenyl cyanide	430	432
100-47-0	Phenyl cyanide	Cyanobenzene::Phenyl cyanide	430	432
100-51-6	Benzyl alcohol	Hydroxy toluene	310	312
100-51-6	Hydroxy toluene	Hydroxy toluene	310	312
100-52-7	Benzaldehyde	Benzaldehyde	120	122
101-14-4	Dichloro -4,4'-methylenedianiline, 2,2'-	Dichloro -4,4'-methylenedianiline, 2,2'-	140	149
101-14-4	Methylene bis(2-Chloroaniline), 4,4'-	Dichloro -4,4'-methylenedianiline, 2,2'-	140	149
101-68-8	Diphenyl methane diisocyanate, 4,4'-	Methylene diphenyl diisocyanate, 4,4'-	210	212
101-68-8	Methylene diphenyl diisocyanate, 4,4'-	Methylene diphenyl diisocyanate, 4,4'-	210	212
101-77-9	Diaminodiphenylmethane, 4,4'-	Diaminodiphenylmethane, 4,4'-	140	149
101-77-9	Diaminodiphenylmethane, 4,4'-	Diaminodiphenylmethane, 4,4'-	140	145
101-77-9	Methylene dianiline	Diaminodiphenylmethane, 4,4'-	140	145
101-77-9	Methylene dianiline	Diaminodiphenylmethane, 4,4'-	140	149
102-69-2	Tripropyl amine		140	143
102-71-6	Triethanolamine		140	143
102-82-9	Tributyl amine		140	148
102-82-9	Tributyl amine		140	143
103-67-3	Benzyl methylamine, N-	Methyl benzylamine, N-	140	146
103-67-3	Benzyl methylamine, N-	Methyl benzylamine, N-	290	292
103-67-3	Methyl benzylamine, N-	Methyl benzylamine, N-	140	146
103-67-3	Methyl benzylamine, N-	Methyl benzylamine, N-	290	292
104-49-4	Paraphenylene diisocyanate (PPDI) crude		210	212
105-39-5	Chloroacetic ethylester		220	222

CAS Number	Chemical Name	Synonym	Class	Sub-Class
105-44-2	Methyl Isobutyl Ketoxime		150	150
106-46-7	Dichlorbenzen, 1,4-		260	263
106-47-8	Chloro aniline, p-	Chloro benzenamine, 4-	140	145
106-47-8	Chloro benzenamine, 4-	Chloro benzenamine, 4-	140	145
106-48-9	Chloro phenol, p-	Hydroxy chlorobenzene	310	316
106-48-9	Chloro phenol, p-	Hydroxy chlorobenzene	260	263
106-48-9	Hydroxy chlorobenzene	Hydroxy chlorobenzene	260	263
106-48-9	Hydroxy chlorobenzene	Hydroxy chlorobenzene	310	316
106-89-8	Chloro 2,3-epoxy propane, 1-	Chloro 2,3-epoxy propane, 1-	270	275
106-89-8	Chloro 2,3-epoxy propane, 1-	Chloro 2,3-epoxy propane, 1-	260	261
106-89-8	Epichlorohydrin	Chloro 2,3-epoxy propane, 1-	270	275
106-89-8	Epichlorohydrin	Chloro 2,3-epoxy propane, 1-	260	261
106-93-4	Dibromoethane, 1,2-	Dibromoethane, 1,2-	260	261
106-93-4	Ethylene dibromide	Dibromoethane, 1,2-	260	261
106-94-5	Propyl bromide, n-		260	261
106-99-0	Butadiene, 1,3-	Vinyl ethylene	290	296
106-99-0	Vinyl ethylene	Vinyl ethylene	290	296
107-02-8	Acrolein	Prop-2-en-1-al	120	121
107-02-8	Prop-2-en-1-al	Prop-2-en-1-al	120	121
107-05-1	Allyl chloride	Chlor allylene::Chloro prene, 3-	260	265
107-05-1	Chlor allylene	Chlor allylene::Chloro prene, 3-	260	265
107-05-1	Chloro prene, 3-	Chlor allylene::Chloro prene, 3-	260	265
107-06-2	Dichlorethane, 1,2.-	Ethylene dichloride	260	261
107-06-2	Ethylene dichloride	Ethylene dichloride	260	261
107-07-3	Chloro ethanol, 2-	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-07-3	Chloro ethanol, 2-	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
107-07-3	Ethylene chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
107-07-3	Ethylene chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-07-3	Glycol chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	310	315
107-07-3	Glycol chlorohydrin	Ethylene chlorohydrin::Glycol chlorohydrin	260	261
107-10-8	Propyl amine, n-		140	141
107-13-1	Acrylonitrile	Cyanoethylene::Propenenitrile, 2-:: Propenoic acid nitrile::Vinyl cyanide	430	431
107-13-1	Cyanoethylene	Cyanoethylene::Propenenitrile, 2-:: Propenoic acid nitrile::Vinyl cyanide	430	431
107-13-1	Propenenitrile, 2-	Cyanoethylene::Propenenitrile, 2-:: Propenoic acid nitrile::Vinyl cyanide	430	431
107-13-1	Propenoic acid nitrile	Cyanoethylene::Propenenitrile, 2-:: Propenoic acid nitrile::Vinyl cyanide	430	431
107-13-1	Vinyl cyanide	Cyanoethylene::Propenenitrile, 2-:: Propenoic acid nitrile::Vinyl cyanide	430	431
107-15-3	Diaminoethane, 1,2-	Diaminoethane, 1,2-	140	148
107-15-3	Ethylene diamine	Diaminoethane, 1,2-	140	148
107-18-6	Allyl alcohol	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311
107-18-6	Hydroxy propene	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311
107-18-6	Propen 1-ol, 2-	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311

107-18-6	Vinyl carbinol	Hydroxy propene::Propen 1-ol, 2-::Vinyl carbinol	310	311
107-19-7	Prop-2-yn-1-ol	Prop-2-yn-1-ol	310	311
107-19-7	Propargyl alcohol	Prop-2-yn-1-ol	310	311
107-21-1	Ethane 1,2-diol	Ethane 1,2-diol::Glycol alcohol	310	314

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
107-21-1	Ethylene glycol	Ethane 1,2-diol::Glycol alcohol	310	314
107-21-1	Glycol alcohol	Ethane 1,2-diol::Glycol alcohol	310	314
107-30-2	Chloro methyl methyl ether	Methoxy chloromethane	240	241
107-30-2	Methoxy chloromethane	Methoxy chloromethane	240	241
107-31-3	Methyl formate		220	221
107-44-8	Sarin (GB), MIL-STD-282		460	462
107-87-9	Methyl Propyl Ketone		390	391
107-92-6	Butyric Acid		100	102
108-05-4	Acetic acid ethenyl ester	Acetic acid ethenyl ester	220	222
108-05-4	Vinyl acetate	Acetic acid ethenyl ester	220	222
108-10-1	Hexone	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391
108-10-1	Isobutyl methyl ketone	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391
108-10-1	Methyl pentan-2-one, 4-	Isobutyl methyl ketone::Methyl pentan-2-one, 4-	390	391
108-21-4	Isopropyl Acetate		220	222
108-24-7	Acetic anhydride		160	161
108-31-6	Maleic anhydride		160	161
108-44-1	Toluidine, m-		140	145
108-59-8	Dimethylmalonate	Dimethylmalonate	220	224
108-59-8	Dimethylmalonate	Dimethylmalonate	220	220
108-77-0	Cyanide chloride	Trichloro 1,3,5-triazine, 2,4,6-	260	263
108-77-0	Cyanide chloride	Trichloro 1,3,5-triazine, 2,4,6-	270	274
108-77-0	Trichloro 1,3,5-triazine, 2,4,6-	Trichloro 1,3,5-triazine, 2,4,6-	260	263
108-77-0	Trichloro 1,3,5-triazine, 2,4,6-	Trichloro 1,3,5-triazine, 2,4,6-	270	274
108-83-8	Di Isobutyl Ketone	Dimethyl-4-Heptanone, 2,6-	390	391
108-83-8	Dimethyl-4-Heptanone, 2,6-	Dimethyl-4-Heptanone, 2,6-	390	391
108-88-3	Methyl benzol	Methyl benzol	290	292
108-88-3	Toluene	Methyl benzol	290	292
108-90-7	Chloro benzene	Phenyl chloride	260	263
108-90-7	Phenyl chloride	Phenyl chloride	260	263
108-93-0	Cyclohexanol	Hexalin	310	312
108-93-0	Hexalin	Hexalin	310	312
108-94-1	Cyclo hexanone	Hexanone::Pimelic ketone	390	391
108-94-1	Hexanone	Hexanone::Pimelic ketone	390	391
108-94-1	Pimelic ketone	Hexanone::Pimelic ketone	390	391
108-95-2	Phenol		310	316
108-98-5	Benzene thiol	Benzene thiol	500	501
108-98-5	Phenyl mercaptan	Benzene thiol	500	501
108-99-6	Methyl pyridine, 3-	Methyl pyridine, 3-	270	271
108-99-6	Picoline, 3-	Methyl pyridine, 3-	270	271
109-02-4	N-Methylmorpholine (NMM)		270	274
109-02-4	N-Methylmorpholine (NMM)		270	278
109-06-8	Methyl pyridine, 2-	Methyl pyridine, 2-	270	271
109-06-8	Picoline, 2-	Methyl pyridine, 2-	270	271
109-43-3	Dibutyl sebacate		220	224
109-52-4	Pentanoic acid		290	291

CAS Number	Chemical Name	Synonym	Class	Sub-Class
109-55-7	1,3-Propanediamine, N,N'-Dimethyl		140	148
109-60-4	Propyl Acetate		220	222
109-61-5	Propylchloroformate		110	113
109-61-5	Propylchloroformate		220	221
109-61-5	Propylchloroformate		260	260
109-63-7	Boron fluoride ethyl ether	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590
109-63-7	Boron trifluoride diethyl etherate	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590
109-63-7	Boron trifluoride etherate	Boron fluoride ethyl ether::Boron trifluoride diethyl etherate	590	590
109-66-0	Pentane		290	291
109-73-9	Butyl amine		140	141
109-86-4	Ethylene glycol monomethyl ether	Ethylene glycol monomethyl ether	240	245
109-86-4	Ethylene glycol monomethyl ether	Ethylene glycol monomethyl ether	310	311
109-86-4	Methoxy ethanol, 2	Ethylene glycol monomethyl ether	240	245
109-86-4	Methoxy ethanol, 2	Ethylene glycol monomethyl ether	310	311
109-89-7	Diethyl amine	Ethyl ethanamine, N-	140	142
109-89-7	Ethyl ethanamine, N-	Ethyl ethanamine, N-	140	142
109-99-9	Tetrahydrofuran		270	277
110-00-9	Furan		270	277
110-18-9	Tetramethylethylene diamine (TMEDA)		140	148
110-49-6	Acetic acid 2 methoxy ethyl ester	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245
110-49-6	Ethylene glycol monomethyl ether acetate	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245
110-49-6	Methoxy ethylacetate, 2-	Acetic acid 2 methoxy ethyl ester::Ethylene glycol monomethyl ether acetate	240	245
110-54-3	Hexane, n-		290	291
110-80-5	Cellosolve acetate	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
110-80-5	Ethoxy ethanol, 2-	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
110-80-5	Ethyl Cellosolve®	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
110-80-5	Ethylene glycol monoethyl ether	Cellosolve acetate::Ethyl Cellosolve®::Ethylene glycol monoethyl ether	240	245
110-82-7	Cyclo hexane		290	291
110-86-1	Pyridine		270	271
110-91-8	Diethylene imide oxide	Diethylene imide oxide	270	278
110-91-8	Diethylene imide oxide	Diethylene imide oxide	270	274
110-91-8	Morpholine	Diethylene imide oxide	270	278
110-91-8	Morpholine	Diethylene imide oxide	270	274
111-15-9	Acetic acid 2 ethoxy ethyl ester	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
111-15-9	Ethoxy ethylacetat	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
111-15-9	Ethyl glycol acetate	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245
111-15-9	Ethylene glycol mono ethyl ether acetate	Acetic acid 2 ethoxy ethyl ester::Ethyl glycol acetate::Ethylene glycol mono ethyl ether acetate	240	245

		ethyl ether acetate		
111-30-8	Glutaral	Glutaral::Pentanedial, 1,5-	120	121
111-30-8	Glutaraldehyde	Glutaral::Pentanedial, 1,5-	120	121
111-30-8	Pentanedial, 1,5-	Glutaral::Pentanedial, 1,5-	120	121
111-40-0	Diethylene triamine		140	148
111-41-1	Amino ethylethanolamine		140	142
111-41-1	Amino ethylethanolamine		310	311
111-41-1	Amino ethylethanolamine		140	148
111-42-2	Diethanolamine		140	142

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
111-44-4	Dichloro ethyl ether		260	261
111-44-4	Dichloro ethyl ether		240	241
111-46-6	Diethylene Glycol		310	314
111-65-9	Octane, n-		290	291
111-69-3	Adipic acid dinitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
111-69-3	Adipic acid nitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
111-69-3	Adiponitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
111-69-3	Adipyl dinitrile	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
111-69-3	Dicyanobutane, 1,4-	Adipic acid dinitrile::Adipic acid nitrile::Adipyl dinitrile::Dicyanobutane, 1,4-	430	431
111-76-2	Butoxy ethanol, 2-	Ethylene glycol monobutyl ether	240	245
111-76-2	Ethylene glycol monobutyl ether	Ethylene glycol monobutyl ether	240	245
111-77-3	Diethylene Glycol Monomethyl Ether		240	245
111-87-5	Octanol, n-		310	311
111-90-0	2-(2-Ethoxyethoxy) ethanol		240	245
112-07-2	Butyl Cellosolve Acetate		240	245
112-24-3	Triethylenetetramine		140	141
112-24-3	Triethylenetetramine		140	148
112-25-4	Ethylene Glycol Monoethyl Ether		240	245
112-34-5	2-(2-Butoxyethoxy) ethanol	Diethylene glycol monobutyl ether	240	245
112-34-5	2-(2-Butoxyethoxy) ethanol	Diethylene glycol monobutyl ether	310	311
112-34-5	Diethylene glycol monobutyl ether	Diethylene glycol monobutyl ether	240	245
112-34-5	Diethylene glycol monobutyl ether	Diethylene glycol monobutyl ether	310	311
112-35-6	Methoxytriglycol		240	245
112-50-5	Ethoxytriglycol		240	245
112-57-2	Tetraethylene pentamine		140	148
112-57-2	Tetraethylene pentamine		140	141
112-59-4	Hexyl Carbitol Solvent		240	245
112-80-1	Oleic Acid		100	102
115-10-6	Dimethyl ether		240	241
115-20-8	Trichloro ethanol, 2,2,2-		310	315
117-81-7	DEHP	DEHP	220	226
117-81-7	Diethyl hexyl phthalate	DEHP	220	226
119-36-8	Methyl salicylate		220	226
120-12-7	Anthracene	Anthracin	290	293
120-12-7	Anthracin	Anthracin	290	293
120-82-1	Trichloro benzene, 1,2,4-		260	263
121-44-8	Diethyl ethanamine, N,N-	Diethyl ethanamine, N,N-	140	143
121-44-8	Triethyl amine	Diethyl ethanamine, N,N-	140	143
121-45-9	Trimethyl phosphite		460	462
121-69-7	Dimethyl aniline, N,N-	Dimethyl phenylamine, N,N-	140	146
121-69-7	Dimethyl phenylamine, N,N-	Dimethyl phenylamine, N,N-	140	146
121-75-5	Malathion		460	462
122-60-1	Phenyl glycidyl ether		270	275
123-39-7	Methyl formamide, N-		130	132
123-42-2	Diacetone Alcohol		390	391

CAS Number	Chemical Name	Synonym	Class	Sub-Class
123-51-3	Isoamyl alcohol	Methyl butan-1-ol, 3-	310	312
123-51-3	Methyl butan-1-ol, 3-	Methyl butan-1-ol, 3-	310	312
123-72-8	Butanal, n-	Butyraldehyde, n-	120	121
123-72-8	Butyraldehyde, n-	Butyraldehyde, n-	120	121
123-73-9	Butenal, 2-	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
123-73-9	Croton aldehyde	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
123-73-9	Ethane diol dipropionate, 1,2-	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
123-73-9	Methyl acrolein	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
123-73-9	Propylene aldehyde	Butenal, 2-::Ethane diol dipropionate, 1,2-::Methyl acrolein::Propylene aldehyde	120	121
123-75-1	Azolidine	Azolidine	270	274
123-75-1	Pyrrolidine	Azolidine	270	274
123-86-4	Butyl acetate, n-		220	222
123-91-1	Dioxane, 1,4-		270	278
123-92-2	Iso Amyl Acetate		220	222
124-09-4	Hexamethylene diamine		140	148
124-40-3	Dimethyl amine		140	142
124-41-4	Sodium methylate		550	550
124-63-0	Methanesulfonyl chloride		500	505
126-73-8	Skydrol 500 B-4		460	462
127-08-2	Potassium acetate		340	340
127-09-3	Sodium acetate		550	550
127-18-4	Ethylene tetrachloride	Ethylene tetrachloride	260	264
127-18-4	Tetrachloro ethylene, 1,1,2,2-	Ethylene tetrachloride	260	264
127-19-5	Dimethyl acetamide, N,N-		130	132
140-29-4	Benzyl cyanide	Phenyl acetonitrile	430	432
140-29-4	Phenyl acetonitrile	Phenyl acetonitrile	430	432
140-31-8	Amino ethylpiperazine		140	141
140-31-8	Amino ethylpiperazine		140	148
140-31-8	Amino ethylpiperazine		270	274
140-88-5	Acrylic acid ethyl ester	Acrylic acid ethyl ester	220	223
140-88-5	Ethyl acrylate	Acrylic acid ethyl ester	220	223
141-32-2	Acrylic acid n-butyl ester	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223
141-32-2	Butyl acrylate, n-	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223
141-32-2	Propenoic acid butyl ester, 2-	Acrylic acid n-butyl ester::Propenoic acid butyl ester, 2-	220	223
141-43-5	Amino ethanol, 2-	Amino ethanol, 2-	140	141
141-43-5	Amino ethanol, 2-	Amino ethanol, 2-	310	311
141-43-5	Ethanol amine	Amino ethanol, 2-	140	141
141-43-5	Ethanol amine	Amino ethanol, 2-	310	311
141-78-6	Acetic acid ethyl ester	Acetic acid ethyl ester	220	222
141-78-6	Ethyl acetate	Acetic acid ethyl ester	220	222
142-82-5	Heptane		290	291
142-96-1	Butyl ether, n-		240	241
143-22-6	Butoxytriglycol		240	245
143-33-9	Sodium cyanide		340	345
144-62-7	Ethane dioic acid	Ethane dioic acid	100	104

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
144-62-7	Oxalic acid	Ethane dioic acid	100	104	592-34-7	Butylchloroformate		220	221
149-57-5	Ethyl hexanoic acid		100	102	592-41-6	Hexene		290	294
151-50-8	Potassium cyanide		340	345	593-53-3	Methyl fluoride		260	261
151-56-4	Aziridine	Aziridine	270	274	593-74-8	Dimethyl mercury in decane		470	470
151-56-4	Ethylene imine	Aziridine	270	274	594-27-4	Tetramethyl tin		470	470
154-93-8	Carmustine		990	991	594-45-6	Ethansulphonic acid		500	504
288-47-1	Thiazol, 1,3-		270	274	616-47-7	Methyl imidazole, 1-		270	274
302-01-2	Hydrazine		280	280	624-48-6	Dimethyl maleate		220	224
328-84-7	Benzene, Dichloro-4-Trifluoro		260	263	624-49-7	Dimethyl fumarate		220	224
353-42-4	Boron trifluoride dimethyl etherate		590	590	624-83-9	Methyl isocyanate		210	211
382-10-5	Hexafluoro isobutylene	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	260	261	628-63-7	Acetic acid pentyl ester	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
382-10-5	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	Trifluoro 2-(trifluoromethyl)propene, 3,3,3-	260	261	628-63-7	Amyl acetate, n-	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
420-04-2	Cyanamide		130	132	628-63-7	Amyl ester acetic acid	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
460-00-4	Bromo 4-fluorobenzene, 1-	Bromo 4-fluorobenzene, 1-	260	263	628-63-7	Pentyl acetate	Acetic acid pentyl ester::Amyl ester acetic acid::Pentyl acetate	220	222
460-00-4	Bromo fluorobenzene, 4-	Bromo 4-fluorobenzene, 1-	260	263	628-76-2	Dichloropentane		260	261
461-82-5	Anilin, 4-Trifluoromethoxy-		140	145	630-08-0	Carbon monoxide		350	350
462-06-6	Fluorobenzene		260	263	755-95-3	Diiodo-1,1,2,2-tetrafluorobutane, 1,4-		260	261
501-53-1	Benzyl chloro formate		110	113	756-79-6	Dimethyl Methyl Phosphonate		460	462
503-38-8	Diphosgene		110	113	811-97-2	Norflurane	Norflurane	260	261
503-38-8	Diphosgene		260	260	811-97-2	Tetrafluoroethane, 1,1,1,2-	Norflurane	260	261
503-38-8	Diphosgene		220	221	814-68-6	Acryloyl Chloride		110	111
504-29-0	Amino pyridine, 2-		270	271	818-61-1	Ethylene glycol acrylate		220	223
505-60-2	Sulfur Mustard (HD), FINABEL 0.7.C		500	502	822-06-0	Hexamethylene diisocyanate		210	211
505-60-2	Sulfur Mustard (HD), MIL-STD-282		500	502	872-50-4	Methyl 2-pyrrolidon, N-		130	132
512-56-1	Trimethyl phosphate		460	462	920-37-6	Chloro acrylonitrile, 2-		260	264
534-07-6	Dichloro -2-propanone, 1,3-	Dichloro -2-propanone, 1,3-	390	391	920-37-6	Chloro acrylonitrile, 2-		430	431
534-07-6	Dichloro -2-propanone, 1,3-	Dichloro -2-propanone, 1,3-	260	261	921-03-9	Trichloro acetone, 1,1,3-		390	391
534-07-6	Dichloro acetone, 1,3-	Dichloro -2-propanone, 1,3-	260	261	921-03-9	Trichloro acetone, 1,1,3-		260	261
534-07-6	Dichloro acetone, 1,3-	Dichloro -2-propanone, 1,3-	390	391	927-68-4	Bromoethyl Acetate, 2-		220	222
534-52-1	Dinitro-o-cresol, 4,6-	Dinitro-o-cresol, 4,6-	310	316	927-68-4	Bromoethyl Acetate, 2-		260	261
534-52-1	Dinitro-o-cresol, 4,6-	Dinitro-o-cresol, 4,6-	440	442	999-97-3	Hexamethyl disilazane	Hexamethyl disilazane, 1,1,1,3,3,3-	480	480
534-52-1	Dinitrocresol	Dinitro-o-cresol, 4,6-	440	442	999-97-3	Hexamethyl disilazane, 1,1,1,3,3,3-	Hexamethyl disilazane, 1,1,1,3,3,3-	480	480
534-52-1	Dinitrocresol	Dinitro-o-cresol, 4,6-	310	316	1003-09-4	Brom thiophene, 2-		500	509
541-25-3	Lewisite (L), FINABEL 0.7.C		470	470	1118-46-3	Butyl stannium trichloride	Butyl stannium trichloride	470	470
541-25-3	Lewisite (L), MIL-STD-282		470	470	1118-46-3	Tin chloride, mono-n-butyl	Butyl stannium trichloride	470	470
541-41-3	Ethylchloroformate		220	221	1310-58-3	Potassium hydroxide		380	380
541-41-3	Ethylchloroformate		260	260	1310-65-2	Lithium hydroxide		380	380
541-41-3	Ethylchloroformate		110	113	1310-73-2	Caustic soda	Caustic soda	380	380
541-73-1	Dichlorbenzen, 1,3-		260	263	1310-73-2	Sodium hydroxide	Caustic soda	380	380
542-75-6	Dichloro propene, 1,3-		260	261	1313-82-2	Disodium sulfide		340	340
563-80-4	Methyl Isopropyl Ketone		390	391	1319-77-3	Cresols, mixed isomers	Cresylic acid::Methyl phenols	310	316
584-08-7	Potassium carbonate		340	340	1319-77-3	Cresylic acid	Cresylic acid::Methyl phenols	310	316
584-84-9	Toluene diisocyanate, 2,4-		210	212	1319-77-3	Methyl phenols	Cresylic acid::Methyl phenols	310	316
592-34-7	Butylchloroformate		110	113	1321-74-0	Divinyl Benzene		290	292
592-34-7	Butylchloroformate		260	260	1330-20-7	Xylene, mixed isomers		290	292

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

CAS Number	Chemical Name	Synonym	Class	Sub-Class
1333-82-0	Chromic acid (CrO3)		370	370
1333-82-0	Chromic acid (H2SO4 x CrO3)		370	370
1336-21-6	Ammonium hydroxide	Caustic ammonia	380	380
1336-21-6	Caustic ammonia	Caustic ammonia	380	380
1338-23-4	Methyl Ethyl Ketone Peroxide	Methyl Ethyl Ketone Peroxide	300	300
1338-23-4	Methyl Ethyl Ketone Peroxide	Methyl Ethyl Ketone Peroxide	300	302
1341-49-7	Ammonium bifluoride	Ammonium hydrogendifluoride	350	350
1341-49-7	Ammonium bifluoride	Ammonium hydrogendifluoride	340	340
1341-49-7	Ammonium hydrogendifluoride	Ammonium hydrogendifluoride	350	350
1341-49-7	Ammonium hydrogendifluoride	Ammonium hydrogendifluoride	340	340
1461-22-9	Tin chloride, tri-n-butyl		470	470
1493-13-6	Trifluoro methansulfonic acid		500	504
1552-12-1	Cyclo octadiene		290	296
1569-01-3	Propoxypropanol		240	245
1634-04-4	Methoxy 2-methylpropane, 2-	Methoxy 2-methylpropane, 2-	240	241
1634-04-4	Methyl tert-butyl ether	Methoxy 2-methylpropane, 2-	240	241
1658-42-0	Methyl -2-pyridyl acetate		220	222
1675-54-3	Bis (4-(2,3-epoxypropoxy)phenyl)propane	Bis (4-(2,3-epoxypropoxy)phenyl)propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275
1675-54-3	Bis phenol A diglycidyl ether	Bis (4-(2,3-epoxypropoxy)phenyl)propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275
1675-54-3	Isopropylidenediphenol diglycidyl ether, 4,4'-	Bis (4-(2,3-epoxypropoxy)phenyl)propane::Isopropylidenediphenol diglycidyl ether, 4,4'-	270	275
1717-00-6	Refrigerant 141B		260	261
1761-71-3	Methylen Isocyclohexylamine, 4,4-		140	148
1885-14-9	Phenyl chlor formiate		220	221
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		110	111
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		240	241
2062-98-8	Perfluoro 2-propoxy propionyl fluoride		260	261
2068-78-2	Vincristine sulfate		990	991
2551-62-4	Sulfur hexafluoride		500	509
2551-62-4	Sulfur hexafluoride		350	350
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	270	274
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	390	390
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	390	391
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	500	509
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	500	500
2634-33-5	Benzisothiazol, 1,2-	Benzisothiazol, 1,2-	270	270
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	390	391
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	270	270
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	500	509
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	270	274
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	500	500
2682-20-4	2-Methyl-4-isothiazolin-3-one	2-Methyl-4-isothiazolin-3-one	390	390
2807-30-9	Propyl Cellosolve, n-		240	245
3173-53-3	Cyclo hexyl isocanyte		210	211
3536-96-7	Vinyl magnesium chloride		470	470
3778-73-2	Ilofamide		990	991

CAS Number	Chemical Name	Synonym	Class	Sub-Class
4109-96-0	Dichloro silane		480	480
4553-62-2	Methyl 1,5-pentantedinitrile, 2-		430	431
4635-87-4	Pentene nitrile, 3-		430	431
5216-25-1	Chloro benzotrichloride, 4-		260	263
5329-14-6	Amido sulfonic acid	Amido sulfonic acid::Sulfamidic acid	370	370
5329-14-6	Amido sulfonic acid	Amido sulfonic acid::Sulfamidic acid	500	509
5329-14-6	Sulfamic acid	Amido sulfonic acid::Sulfamidic acid	370	370
5329-14-6	Sulfamic acid	Amido sulfonic acid::Sulfamidic acid	500	509
5329-14-6	Sulfamidic acid	Amido sulfonic acid::Sulfamidic acid	370	370
5329-14-6	Sulfamidic acid	Amido sulfonic acid::Sulfamidic acid	500	509
5394-63-8	Diketene Acetone		390	391
5394-63-8	Diketene Acetone		270	278
5989-27-5	Limonene d-	Methyl 4-isopropenyl-1-cyclohexene, 1-	290	296
5989-27-5	Methyl 4-isopropenyl-1-cyclohexene, 1-	Methyl 4-isopropenyl-1-cyclohexene, 1-	290	296
6092-54-2	Hexyl chloro formate, 2-		220	221
6303-21-5	Hypophosphorus acid	Phosphinic acid	370	370
6303-21-5	Phosphinic acid	Phosphinic acid	370	370
6834-92-0	Sodium silicate		340	340
6881-94-3	Diethylene Glycol Monopropyl Ether		240	245
7087-68-5	Diisopropylethylamine (DIPEA)		140	141
7439-97-6	Mercury		330	330
7446-09-5	Sulfur dioxide		350	350
7446-09-5	Sulfur dioxide		360	365
7446-11-9	Sulfur trioxide		360	365
7447-41-8	Lithium chloride		340	340
7452-59-7	Octyl chlor formiate		110	113
7452-59-7	Octyl chlor formiate		220	221
7487-94-7	Mercuric II chloride		340	340
7550-45-0	Titan(IV) chloride	Titan(IV) chloride	360	360
7550-45-0	Titanium tetrachloride	Titan(IV) chloride	360	360
7553-56-2	Iodine		330	330
7601-90-3	Perchloric acid		370	370
7631-90-5	Sodium bisulphite		500	507
7632-51-1	Vanadium tetrachloride		360	360
7637-07-2	Boron trifluoride		360	360
7637-07-2	Boron trifluoride		350	350
7647-01-0	Hydrochloric acid		370	370
7647-01-0	Hydrogen chloride		370	370
7647-01-0	Hydrogen chloride		350	350
7647-14-5	Sodium chloride		990	991
7647-18-9	Antimony pentachloride	Pentachloroantimony	360	360
7647-18-9	Pentachloroantimony	Pentachloroantimony	360	360
7664-38-2	Phosphoric acid		370	370
7664-39-3	Hydrofluoric acid		350	350
7664-39-3	Hydrofluoric acid		370	370

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
7664-39-3	Hydrogen fluoride		370	370	8014-95-7	Oleum	Sulfuric acid fuming	370	370
7664-39-3	Hydrogen fluoride		350	350	8014-95-7	Sulfuric acid fuming	Sulfuric acid fuming	370	370
7664-41-7	Ammonia		350	350	8030-30-6	VM & P Naphtha		290	291
7664-41-7	Ammonia		380	380	8032-32-4	Naphtha		290	292
7664-41-7	Ammonia	30081410	350	350	8052-41-3	Low boiling point naphtha - unspecified	Low boiling point naphtha - unspecified	290	291
7664-41-7	Ammonia	30081410	380	380	8052-41-3	Stoddard solvent	Low boiling point naphtha - unspecified	290	291
7664-93-9	Sulfuric acid		370	370	9016-87-9	Polymethylene polyphenyle isocyanate (p-MDI)		210	212
7681-49-4	Sodium fluoride		340	340	10024-97-2	Nitrous oxide		350	350
7681-52-9	Sodium hypochlorite		340	340	10025-67-9	Disulphur dichloride	Disulphur dichloride	500	502
7681-57-4	Sodium metabisulphite		340	340	10025-67-9	Sulfur monochloride	Disulphur dichloride	500	502
7697-37-2	Nitric acid		370	370	10025-78-2	Trichloro silane		480	480
7705-08-0	Ferric (III) chloride		340	340	10025-87-3	Phosphorus oxychloride		360	360
7719-09-7	Thionyl chloride		360	360	10026-04-7	Silicon tetrachloride		480	480
7719-12-2	Phosphorus trichloride		360	360	10026-04-7	Silicon tetrachloride		360	360
7722-64-7	Potassium permanganate		340	340	10034-85-2	Hydriodic acid		370	370
7722-84-1	Hydrogen peroxide		300	301	10035-10-6	Hydrobromic acid		370	370
7726-95-6	Bromine		330	330	10035-10-6	Hydrogen bromide		370	370
7758-94-3	Ferric (II) chloride		340	340	10035-10-6	Hydrogen bromide		350	350
7782-41-4	Fluorine		350	350	10102-43-9	Nitric oxide		350	350
7782-50-5	Chlorine		350	350	10102-44-0	Nitrogen Dioxide (liquid)	Nitrogen Dioxide (liquid)	350	350
7782-50-5	Chlorine		330	330	10102-44-0	Nitrogen dioxide		350	350
7783-06-4	Hydrogen sulfide		350	350	10112-91-1	Calomel	Calomel	340	340
7783-06-4	Hydrogen sulfide		500	502	10112-91-1	Mercuric I chloride	Calomel	340	340
7783-07-5	Hydrogen selenide		350	350	10217-52-4	Hydrazine hydrate		280	280
7783-54-2	Nitrogen trifluoride		350	350	10294-34-5	Boron trichloride		350	350
7783-82-6	Tungsten hexafluoride		350	350	10294-34-5	Boron trichloride		360	360
7784-34-1	Arsenic (III) chloride	Arsenic trichloride	340	340	10544-72-6	Nitrogen tetroxide		350	350
7784-34-1	Arsenic trichloride	Arsenic trichloride	340	340	10545-99-0	Chlorine sulfide	Sulphur dichloride	500	502
7784-42-1	Arsine		350	350	10545-99-0	Sulphur dichloride	Sulphur dichloride	500	502
7789-00-6	Potassium chromate		340	340	11097-69-1	PCB 1254		260	263
7789-21-1	Fluorosulfonic acid		370	370	12125-01-8	Ammonium fluoride		340	340
7790-91-2	Chlorine trifluoride		350	350	12125-02-9	Ammonium chloride		340	340
7790-94-5	Chlorosulfonic acid		500	504	13284-42-9	Pentene nitrile, 2-		430	431
7790-94-5	Chlorosulfonic acid		370	370	13360-57-1	Diamino sulfo chloride		260	261
7803-51-2	Phosphine		350	350	13463-39-3	Nickel carbonyl	Tetracarbonylnickel	470	470
7803-62-5	Silane		480	480	13463-39-3	Tetracarbonylnickel	Tetracarbonylnickel	470	470
8001-58-9	Creosote		310	316	13831-31-7	Acetoxyacetyl Chloride		110	111
8002-05-9	Crude oil, California	Mineral oil	290	294	15520-10-2	Dytek® A		140	148
8002-05-9	Crude oil, California	Mineral oil	290	291	15663-27-1	Cisplatin		990	991
8006-64-2	Turpentine		290	296	16752-77-5	Methomyl		230	233
8006-64-2	Turpentine		290	294	16872-11-0	Fluoroboric acid		370	370
8007-56-5	Aqua regia	Aqua regia	370	370	16961-83-4	Fluorosilicic acid		370	370
8007-56-5	Nitrohydrochloric Acid	Aqua regia	370	370	19287-45-7	Diborane		350	350
8008-20-6	Kerosene		290	291	24991-55-7	Polyethylene glycol dimethyl ether		240	245
8012-95-1	Mineral oil		290	291	25136-40-9	Doxorubicin HCl		990	991

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
25340-17-4	Diethyl benzene		290	292	mix	PCB in transformer oil		260	263
25899-50-7	Pentene nitrile, cis-2-		430	431	mix	Skydrol 4D	Skydrol 4D	590	590
26471-62-5	Toluene diisocyanate, 1,3-		210	212	mix	Skydrol 5	Skydrol 5	590	590
29911-27-1	Dipropylene Glycol Monopropyl Ether		240	245	mix	Skydrol PE-5	Skydrol PE-5	590	590
29911-28-2	Butyl Dipropasol Solvent		240	245	mix	Spectracide® (50% Malathion, 44% Aromatic Solvent)	Spectracide® (50% Malathion, 44% Aromatic Solvent)	590	590
29921-57-1	Isopropyl bromoacetate		260	260	mix	White Liquor		590	590
29921-57-1	Isopropyl bromoacetate		220	222	mix	White spirit		290	291
29921-57-1	Isopropyl bromoacetate		110	110	mix	m-Cresol 55%, p-Cresol 30%, Phenol 15%		310	316
30894-74-7	Dichloro -6-isopropyl-S-triazine, 2,4-		270	274	mix	t-Sodium-amylate / t-amyl alcohol		590	590
31218-83-4	Safrotin		460	462					
33069-62-4	Paclitaxel (Hospira)		990	991					
33419-42-0	Etoposide (Toposar®, Teva)		990	991					
41575-94-4	Carboplatin		990	991					
50782-69-9	VX Nerve Agent, FINABEL 0.7.C		460	462					
50782-69-9	VX Nerve Agent, MIL-STD-282		460	462					
50815-00-4	JP-4 Jet Fuel		290	291					
52583-42-3	Nitric acid, red fuming		370	370					
63121-00-6	Oxaliplatin		990	991					
64475-85-0	Mineral spirit		290	291					
68334-30-5	Diesel fuel		290	291					
68476-30-2	Fuel-oil no 2		290	291					
68956-56-9	Citrus Terpenes Mixture		140	148					
71486-22-1	Vinorelbine		990	991					
82410-32-0	Ganciclovir		990	991					
83016-70-0	Urethane Catalyst Alkanol		240	245					
86290-81-5	Gasoline, unleaded		290	291					
94114-58-6	JP-8 Jet Fuel		290	291					
94239-04-0	Pyridene, 2-fluoro-6-(trifluoromethyl)		270	271					
95058-81-4	Gemcitabine		990	991					
97697-37-4	Nitric/Hydrofluoric Pickling Solution		370	370					
100286-90-6	Irinotecan		990	991					
308066-70-8	Gasoline, unleaded E10 (87 Octane)		290	291					
mix	Black Liquor		590	590					
mix	Chemguard S-764P14A	Chemguard S-764P14A	590	590					
mix	Chemidize 727 ND		590	590					
mix	Dahlgren Decon solution	Dahlgren Decon solution	590	590					
mix	Diesel Fuel Grade D-2		290	290					
mix	Diesel automotive test fuel		290	291					
mix	Dowtherm Heat Transfer Fluid	Dowtherm Heat Transfer Fluid	590	590					
mix	DuPont Activator 193S		590	590					
mix	DuPont Activator 4505S		590	590					
mix	DuPont Activator 4507S		590	590					
mix	Gasoline, leaded		290	291					
mix	Green Liquor		590	590					
mix	PCB		260	263					