

Tychem® BR Permeation Test Data

Chemical Name	Concentration	Breakthrough Time	Permeation Rate	SDL
	(%)	Normalized (min)	(ug/cm2/min)	(ppm)
1,1,2,2-TETRACHLOROETHANE	95+	>480	0.0005	
1,1,2-TRICHLOROETHANE	95+	>480	<0.01	
1,3-DICHLOROACETONE (40°C)	95+	>480	<0.1	
1,4-DIOXANE	95+	>480	<0.05	
1,6-HEXAMETHYLENEDIAMINE	95+	>480	<0.01	
2,2,2-TRICHLOROETHANOL	95+	>480	<0.01	
2,2,2-TRIFLUOROETHANOL	95+	>480	<0.001	
2,3-DICHLOROPROPENE	95+	>480	<0.08	
2-CHLOROETHANOL	95+	>480	<0.008	
2-METHYLGLUTARONITRILE	87	>480	<0.1	
2-NITROPHENOL, (70°C)	95+	208	0.17	
2-PICOLINE	95+	46	48	
3,4-DICHLOROANILINE	95+	>480	<0.001	
3,4-DICHLOROANILINE (70°C)	95+	284	2.4	
3-PICOLINE	95+	11	22	
4,4'METHYLENE BIS(2-CHLOROANILINE)	95+	>480	<0.1	
ACETALDEHYDE	95+	>480	<0.01	
ACETIC ACID	95+	339	1.3	
ACETIC ANHYDRIDE	95+	>480	<0.001	
ACETONE	95+	>480	<0.001	
ACETONE CYANOHYDRIN	95+	>480	<0.01	
ACETONITRILE	95+	>480	<0.01	
ACETYL CHLORIDE	95+	181	2	
ACROLEIN	95+	>480	<0.02	
ACRYLAMIDE	50% in water	>480	<0.1	
ACRYLIC ACID	95+	270	1.6	
ACRYLONITRILE	95+	>480	<0.0003	
ADIPONITRILE	95+	>480	<0.1	
ALLYL ALCOHOL	95+	>480	<0.1	
ALLYL CHLORIDE	95+	>480	<0.06	
AMMONIA GAS	95+	46	0.62	
AMMONIUM FLUORIDE	40	>480	<0.01	
AMMONIUM HYDROXIDE	28-30	160	4.7	
AMYL ACETATE	95+	>480	<0.003	
ANILINE	95+	>480	<0.1	
ARSINE	95+	>480	<0.01	
BENZENE SULFONYL CHLORIDE	95+	>480	<0.1	
BENZIDINE, 25% in METHANOL	25% in Methanol	>480	<0.01	
BENZONITRILE	95+	>480	<0.004	
BENZONITRILE	95+	>480	<0.004	
BENZOYL CHLORIDE	95+	>480	<0.05	
BENZYL CHLORIDE	95+	>480	<0.01	
BORON TRICHLORIDE	95+	>480	<0.02	

BORON TRIFLUORIDE	95+	>480	<0.1	
BROMINE	95+	imm.	>50	
BUTANOL N-	95+	>480	<0.002	
BUTYL ACRYLATE	95+	51	18.4	
BUTYL ETHER N-	95+	>480	0.001	
BUTYL METHYL ETHER T-	95+	>480	<0.007	
BUTYL METHYL ETHER T-	95+	>480	<0.01	
BUTYLAMINE	95+	>480	<0.01	
BUTYRALDEHYDE	95+	>480	<0.007	
CARBON DISULFIDE	95+	>480	<0.001	
CARBON MONOXIDE	95+	330	0.1	
CARBON TETRACHLORIDE	95+	>480	<0.015	
CELLOSOLVE SOLVENT	95+	>480	<0.008	
CHLORDANE	95+	>480	<0.01	
CHLORIDE DIOXIDE, 1000 ppm	1000 ppm	>480	<0.01	
CHLORIDE DIOXIDE, 150 ppm	150 ppm	>480	<0.01	
CHLORINE GAS	95+	>480	<0.01	
CHLORINE TRIFLUORIDE	95+	45	96	
CHLOROACETIC ACID	95+	>480	<0.1	
CHLOROACETIC ACID (75-80%)	75	>480	<0.01	
CHLOROACETYL CHLORIDE	95+	160	23.2	
CHLOROBENZENE	95+	>480	<0.001	
CHLOROFORM	95+	>480	<0.004	
CHLOROMETHYL METHYL ETHER	95+	>480	0.03	
CHLOROSULFONIC ACID	95+	180	98	
cis-2-PENTENENITRILE	95+	>480	<0.001	
CRESOL, MIXED ISOMERS	95+	>480	<0.01	
CROTONALDEHYDE	95+	>480	<0.06	
CRUDE OIL	95+	>480	<0.04	
CUMENE	95+	>480	<0.001	
CYCLOHEXANE	95+	>480	<0.03	
CYCLOHEXANONE	95+	>480	<0.01	
DI (2-ETHYLHEXYL) PHTHALATE	95+	>480	<0.07	
DIBORANE	10	>480	<0.005	
DICHLOROACETYL CHLORIDE	95+	100	20.5	
DICHLOROETHYL ETHER	95+	>480	<0.01	
DICHLOROETHYL ETHER	95+	>480	<0.01	
DICHLOROMETHANE	95+	432	0.06	
DICHLOROPROPANE 1,2-	95+	>480	<0.01	
DICHLOROSILANE	95+	>480	<0.1	
DIESEL FUEL	95+	>480	<0.03	
DIETHYLAMINE	95+	>480	<0.001	
DIETHYLENETRIAMINE	95+	>480	<0.1	
DIISOCYANATOHEXANE	95+	>480	<0.01	
DIMETHYL ACETAMIDE N, N-	95+	>480	<0.006	
DIMETHYL HYDRAZINE	95+	>480	<5.0	
DIMETHYL SULFATE	95+	>480	<0.001	
DIMETHYL SULFOXIDE	95+	>480	<0.003	
DIMETHYLFORMAMIDE N,N-	95+	>480	<0.001	

DINITRO-O-CRESOL, sat. solution in Methanol	95+	>480	<0.013	
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DIPHENYLMETHANE DIISOCYANATE 4,4-	95+	>480	<0.07	
d-LIMONENE	95+	>480	<0.01	
EPICHLOROHYDRIN	95+	>480	<0.014	
ETHANOLAMINE	95+	>480	<0.1	
ETHYL ACETATE	95+	>480	<0.001	
ETHYL ACRYLATE	95+	14	91	
ETHYL BENZENE	95+	>480	<0.001	
ETHYL CELLOSOLVE ACETATE	95+	>480	<0.002	
ETHYL ETHER	95+	>480	<0.001	
ETHYL PARATHION	95+	>480	<0.01	
ETHYLAMINE (15°C)	95+	361	1.49	
ETHYLENE DIAMINE	99	>480	<0.001	
ETHYLENE DIBROMIDE	95+	>480	<0.1	
ETHYLENE DICHLORIDE	95+	>480	<0.002	
ETHYLENE GLYCOL	95+	>480	<0.02	
ETHYLENE OXIDE GAS	95+	>480	<0.01	
ETHYLENE OXIDE LIQUID (0°C)	95+	>480	<0.01	
ETHYLENEIMINE	95+	59	0.56	
FLUOROBENZENE	95+	>480	<0.1	
FLUOROSULFONIC ACID	95+	>480	<0.1	
FLUOSILICIC ACID	95+	>480	<0.1	
FORMALDEHYDE GAS	37	>480	<0.09	
FORMALIN, 10%	37	>480	<0.09	
FORMIC ACID	95+	>480	<0.01	
FREON 113	95+	>480	<0.01	
FURFURAL	95+	>480	<0.01	
GASOLINE, LEADED	95+	>480	ND	
GLUTERALDEHYDE	50	>480	<0.1	
GLUTERALDEHYDE, 5%	5	>480	<0.1	
GLYCOLIC ACID	sat. solution in water	>480	<0.1	
HEXACHLOROBUTADIENE 1,3-	95+	>480	<0.01	
HEXAFLUOROISOBUTYLENE	95+	>480	<0.01	
HEXAMETHYLDISILAZANE	95+	>480	<0.02	
HEXANE	95+	>480	<0.001	
HYDRAZINE	95+	>480	<0.05	
HYDRAZINE HYDRATE, 85%	85	440	0.06	
HYDRIODIC ACID, 57%	57	>480	<0.1	
HYDROCHLORIC ACID	37	>480	<0.02	
HYDROFLUORIC ACID	50	>480	<0.02	
HYDROFLUORIC ACID (90°C)	92 (90°C)	67*	2.8	
HYDROGEN BROMIDE	95+	>480	<0.1	
HYDROGEN CHLORIDE GAS	95+	>480	<0.1	
HYDROGEN CYANIDE GAS	95+	>480	<0.1	
HYDROGEN CYANIDE LIQUID	95+	105	1.7	

HYDROGEN FLUORIDE GAS	95+	135	6.7	
HYDROGEN PEROXIDE, 30%	70	>480	<0.01	
HYDROGEN SELENIDE	95+	>480	<0.01	
HYDROGEN SULFIDE	95+	>480	<0.01	
ISOPROPYL ALCOHOL	95+	>480	<0.1	0.01
ISOPROPYLAMINE	95+	>480	<0.01	
JET FUEL A	95+	>480	<0.1	
JP-4 FUEL	95+	>480	<0.002	
JP-8 FUEL	95+	>480	<0.1	
JP-8 FUEL	95+	>480	<0.01	
LEWISITE (L) CHEMICAL AGENT	95+	>720	<0.060	
LINDANE, SAT. SOLUTION IN ACETONE	sat. sol. In Acetone	>480	<0.06	
MALATHION, 50% in Methanol	50	>480	<0.1	
MALATHION, 95%	95	>480	<0.013	
m-CRESOL	55	>480	<0.09	
MERCURIC CHLORIDE	sat.	>480*	<0.1	
MERCURY	95+	>480	<0.0002	
METHACRYLIC ACID	95+	>480	<0.01	
METHANOL	95+	157	0.81	
METHOMYL (LANNATE LV)	29	>480	<0.1	
METHYL ACRYLATE	95+	>480	<0.01	
METHYL BROMIDE	95+	>480	<0.01	
METHYL CELLOSOLVE	95+	>480	<0.01	
METHYL CELLOSOLVE	95+	>480	<0.01	
METHYL CELLOSOLVE ACETATE	95+	>480	<0.01	
METHYL CHLORIDE	95+	>480	<0.001	
METHYL CHLOROFORMATE	95+	>480	0.011	
METHYL ETHYL KETONE	95+	>480	<0.007	
METHYL ETHYL KETOXIME	95+	>480	<0.1	
METHYL FLUORIDE	95+	>480	<0.02	
METHYL HYDRAZINE	95+	>480	<0.01	
METHYL IODIDE	95+	>480	<0.01	
METHYL ISOCYANATE	95+	>480	<0.013	
METHYL MERCAPTAN	95+	>480	<0.001	
METHYL METHACRYLATE	95+	>480	<0.02	
METHYL TRICHLOROSILANE	95+	>480	<0.1	
METHYLAMINE (GAS)	95+	105	40	
METHYLAMINE (GAS)	95+	105	40	
METHYLAMINE (LIQUID)	40	261	1.8	
METHYLAMINE (LIQUID, 50%)	50	232	2.2	
METHYLENE DIANILINE (15% SOL. IN MEK)	15	>480	<0.1	
METHYLISOBUTYLKETONE	95+	>480	0.001	
MINERAL SPIRITS	95+	>480	<0.01	
MORPHOLINE	95+	>480	<0.1	
MUSTARD (HD) CHEMICAL AGENT	95+	>720	<0.1000	
N,N-DIMETHYLANILINE	95+	>480	<0.13	

n-BUTYL ACETATE	95+	>480	<0.01	
NERVE (VX) CHEMICAL AGENT	95+	>720	<0.0001	
NICOTINE	95+	>480	<0.1	
NITRIC ACID, 70%	70	>480	<0.1	
NITRIC ACID, 90%	90	>480	<0.033	
NITROBENZENE	95+	>480	<0.005	
NITROGEN TETROXIDE	95+	90	>1.1	
NITROGEN TETROXIDE (0°C)	95+	>480	0.001	
NITROGEN TRIFLUORIDE	95+	>480	<0.014	
NITROMETHANE	95+	>480	<0.01	
NITROUS OXIDE	95+	>480	<0.018	
N-METHYL PYRROLIDONE	95+	>480	<0.01	
o-CHLOROTOLUENE	95+	>480	<0.0001	
OCTANE	95+	>480	<0.01	
OLEUM (40% free SO3)	40% free SO3	>480	<0.04	
OXALIC ACID	10.5	>480	<0.1	
PCB, 50% IN TRICHLOROBENZENE	50	>480	<0.001	
p-CHLOROANILINE	sat. solution in water	>480	<0.09	
p-CHLOROANILINE (70°C)	95+	344	9.4	
p-CHLOROPHENOL	sat. sol. In Methanol	>480	<0.013	
PENTACHLOROPHENOL	sat.	>480	<0.013	
PERCHLORIC ACID	70	>480	<0.1	
PHENOL	85+	>480	<0.03	
PHOSGENE	95+	>480	<0.1	
PHOSPHINE	95+	>480	<0.01	
PHOSPHORIC ACID	85	>480	<0.1	
PHOSPHOROUS OXYCHLORIDE	95+	>480	<0.1	
PHOSPHOROUS TRICHLORIDE	95+	>480	<0.1	
POTASSIUM ACETATE	sat. in water	>480	<0.49	
POTASSIUM CHROMATE	sat. in water	>480	<0.51	
POTASSIUM HYDROXIDE	95+	>480	<0.008	
POTASSIUM HYDROXIDE, 45%	45	>480	<0.008	
PROPYLENE OXIDE	95+	>480	<0.002	
PYRIDINE	95+	>480	<0.01	
SARIN (GB) CHEMICAL AGENT	95+	>720	<0.0001	
SILANE	95+	>480	<0.1	
SILICON TETRACHLORIDE	95+	>480	<0.1	
SODIUM CYANIDE	95+	>480	<0.33	
SODIUM HYDROXIDE, 50%	50	>480	<0.1	
SOMAN (GD) CHEMICAL AGENT	95+	>720	<0.0001	
STODDARD SOLVENT	95+	>480	<0.001	
STYRENE	95+	>480	<0.001	
SULFUR DICHLORIDE	80	70	6	
SULFUR DIOXIDE	95+	>480	<0.1	
SULFUR HEXAFLUORIDE	95+	>480	<0.015	
SULFUR MONOCHLORIDE	95+	>480	<0.01	
SULFUR TRIOXIDE	95+	90	696	

SULFURIC ACID	95+	>480	<0.1	
SULFURYL CHLORIDE	95+	>480	<0.1	
TABUN (GA) CHEMICAL AGENT	95+	>720	<0.0001	
TETRACHLOROETHYLENE	95+	>480	<0.001	
TETRAETHYLLEAD	95+	>480	<0.01	
TETRAFLUOROMETHANE	95+	>480	<0.0177	
TETRAHYDROFURAN	95+	464	0.12	
TETRAHYDROFURAN	95+	>480	<0.001	
THIOGLYCOLIC ACID	95+	>480	<0.1	
THIONYL CHLORIDE	95+	35	2500	
TITANIUM TETRACHLORIDE	95+	>480	<0.1	
TOLUENE	95+	>480	<0.004	
TOLUENE 1,3-DIISOCYANATE	95+	>480	<0.01	
TOLUENE DIISOCYANATE	95+	>480	<0.5	
TOLUIDINE O-	95+	>480	<0.001	
TRICHLORASILANE	95+	>480	<0.022	
TRICHLOROBENZENE	95+	>480	<0.01	
TRICHLOROETHANE 1,1,1-	95+	>480	<0.01	
TRICHLOROETHYLENE	95+	>480	<0.022	
TRICHLOROETHYLENE	95+	>480	<0.1	
TRIETHYLAMINE	95+	>480	<0.1	
TRIFLUOROMETHANE	95+	>480	<0.014	
TRIMETHYLPHOSPHITE	95+	>480	<0.1	
TUNGSTEN HEXAFLUORIDE	95+	>480	<0.026	
UNLEADED GASOLINE	95+	>480	<0.001	
VINYL ACETATE	95+	>480	<0.01	
VINYL CHLORIDE	95+	>480	<0.001	
VINYLDENE CHLORIDE	95+	>480	<0.01	
XYLENES	95+	>480	<0.004	