

GLOVE CHEMICAL RESISTANCE GUIDE (1)

CHEMICAL	Silver Shield (4 Mil)			Viton (9 Mil)			Butyl (17 Mil)			Nitrile (11 Mil)		
	D	BT	PR	D	BT	PR	D	BT	PR	D	BT	PR
Acetaldehyde	E	>6h	ND	P	0m	281.9	E	9.6	0.07	F	4m	161
Acetone	E	>6h	ND	P	ID	ID	E	>17h	ND	P	ID	ID
Acetonitrile	E	>8h	ND	ID	ID	ID	E	>8h	ND	ID	ID	ID
Acrylic Acid	ID	ID	ID	G	5.9h	0.23	E	>8h	ND	F	ID	ID
Acrylonitrile	E	ID	ID	F	1m	176	G	3.1h	<0.01	P	3m	176
Aldehyde	E	>6h	ND	P	0m	281.9	E	9.5h	0.07	P	4	161
Aniline	E	>8h	ID	G	10m	18.7	F	>8h	ND	P	1.1h	45
Benzaldehyde	ID	ID	ID	F	9.9h	4	E	9h	ND	P	ID	ID
Benzene	E	>8h	ND	G	6h	0.012	P	31m	32.3	P	ID	ID
Benzoyl Chloride	ID	ID	ID	E	>8h	ND	F	6.2h	16.6	P	ID	ID
Bromobenzene	E	ID	ID	E	8h	ND	P	32m	39.8	P	13m	9.1
Butyl Acetate	E	>6h	ND	P	ID	ID	G	1.9h	7.61	P	29m	54.4
p-t Butyltoluene	E	>8h	ND	E	>8h	ND	G	1.7h	8	P	ID	ID
Butyraldehyde	E	ID	ID	P	54m	9	E	>15h	ND	P	ID	ID
Carbon Disulfide	G	>8h	ND	E	>8h	ND	P	7m	98	P	1m	51
Carbon Tetrachloride	E	>6h	ND	E	>13h	ND	P	ID	ID	G	3.4h	5
Cellosolve	G	>6h	ND	F	ID	ID	G	ID	ID	P	ID	ID
Chlorobenzene	E	ID	ID	E	>8h	ND	P	35m	308	P	ID	ID
Chloroform	P	10m	0.009	E	9.5h	0.46	P	ID	ID	P	4m	352
Chloronaphthalene	E	>8h	ND	E	>16h	ND	P	ID	ID	P	2.9h	>1.3
Chloroprene	ID	ID	ID	ID	>8h	ND	P	28m	18	ID	ID	ID
Cyclohexane	E	>6h	ND	E	>7h	ND	P	1.1h	20.3	P	ID	ID

Cyclohexanol	E	>6h	ND	E	>8h	ND	E	>11h	ND	E	>16h	ND
Cyclohexanone	E	>6h	ND	P	29m	86.3	E	>16h	ND	P	ID	ID
Dibutylphthalate	E	>6h	ND	E	>8h	ND	E	>16h	ND	E	>16h	ND
1,1-Dichloroethane	ID	2.4h	6	G	1.5h	31	ID	ID	ID	P	ID	ID
1,2-Dichloroethane	E	>6h	ND	E	6.9	0.81	P	2h	53	P	8m	311
Diethylamine	E	>8h	ND	P	35m	852	P	47m	46	F	ID	ID
Diethylaminoethanol	E	ID	ID	E	>8h	ND	E	>8h	ND	E	>8h	ND
1,4-Diethylene Dioxide	ID	>8h	ND	P	23m	26.8	E	>20h	ND	P	28m	77.1
Diethylenetriamine	ID	ID	ID	E	>8h	ND	E	>8h	ND	P	ID	ID
Diisobutyl Ketone 80%	E	>6h	ND	F	1.2h	90.6	G	3.3h	41.2	F	3h	48.9
Dimethyl Acetamide	ID	1.5h	0.728	P	25m	3	ID	>8h	ND	ID	ID	ID
Dimethyl Formamide	E	>8h	ND	P	8m	6.5	E	>8h	ND	F	1m	>15
Dimethylsulfoxide	G	ID	ID	F	1.5h	5	E	>8h	ND	F	ID	ID
Dioxane	E	>8h	ND	F	23m	26.8	E	>20h	ND	P	28m	77.1
Divinyl Benzene	E	>8h	ND	E	>17h	ND	F	2.2h	238	P	ID	ID
Epichlorohydrin	ID	ID	ID	P	2h	4	G	>8h	ND	P	ID	ID
Ether	ID	>6h	ND	P	12m	21.5	P	8m	92.2	P	14m	21.8
Ethyl Acetate	E	>6h	ND	P	ID	ID	G	7.6h	3.4	P	8m	145
Ethyl Ether	ID	>6h	ND	P	12m	21.5	P	8m	92.2	P	14m	21.8
Ethylamine 70%	E	47m	7.64	P	ID	ID	E	>12h	ND	F	1.1h	30.1
Ethylene dibromide	E	ID	ID	E	>8h	ND	F	3.3h	6	P	ID	ID
Formaldehyde 37%	E	>6h	ND	E	>16h	ND	E	16h	ND	E	>21h	ND
Furan	ID	ID	ID	P	20m	23	P	1.3h	10	P	ID	ID
Furfural	E	>8h	ND	F	3.6h	14.8	E	>16h	ND	P	28m	265
Glutaraldehyde	E	ID	ID	E	>8h	ND	E	>8h	ND	P	ID	ID
n-Hexane	E	>6h	ND	ID	>11h	ND	P	ID	ID	E	ID	ID

Hydrazine 70%	G	>6h	ND	P	ID	ID	E	>8h	ND	G	>8h	ND
Hydrochloric Acid 37%	E	>6h	ND	E	ID	ID	E	ID	ID	P	ID	ID
Hydrofluoric Acid 50%	G	>6h	ND	G	ID	ID	F	ID	ID	P	ID	ID
Glove Perm Chart cont.	Silver Shield (4 Mil)			Viton (9 Mil)			Butyl (17 Mil)			Nitrile (11 Mil)		
Chemical (cont.)	D	BT	PR	D	BT	PR	D	BT	PR	D	BT	PR
Isobutyl Alcohol	E	ID	ID	E	>8h	ND	E	>8h	ND	G	>8h	ND
Isobutyraldehyde	E	ID	ID	P	4m	11.5	E	>8h	ND	P	ID	ID
Methacrylic Acid	ID	ID	ID	F	>8h	ND	G	>8h	ND	P	1.7h	23
Methacrylonitrile	E	ID	ID	F	4m	462	G	6.8h	0.001	P	7m	560
Methyl Chloroform	ID	>6h	ND	E	>15h	ND	P	ID	ID	P	41m	76.4
Methyl Cyanide	ID	>8h	ND	ID	ID	ID	E	>8h	ND	ID	ID	ID
Methyl Ethyl Ketone	E	>24h	ND	P	ID	ID	E	>8h	ND	P	ID	ID
Methyl Isocyanate	ID	ID	ID	P	4m	121	P	1.1h	9	P	ID	ID
Methylamine 40%	F	1.9h	2	E	>16h	ND	E	>15h	ND	G	>8h	ND
Methylene Chloride	G	>8h	ND	F	1h	7.32	P	24m	133	P	4m	766
Methylene Dianiline	E	>24h	ND	E	>8h	ND	E	>24h	ND	F	ID	ID
Methylene Dichloride	ID	1.9h	0.002	G	1.9h	7.32	P	ID	ID	P	4m	766
Morpholine	E	>8h	ND	G	ID	97	E	>16h	ND	P	48m	206
Nitric Acid, 3 Molar	E	>6h	ND	G	>8h	ID	F	ID	ID	P	ID	ID
Nitrobenzene	E	>8h	ND	E	21m	ND	E	>23	ND	F	33m	1.7
Nitropropane	E	>8h	ND	P	>8h	26.1	E	>8h	ND	P	16m	29.5
Oxalic Acid	E	>8h	ND	E	>8h	ND	E	>8h	ND	G	ID	ID
PCB, Aroclor 1254 50%	E	>8h	ND	E	>13h	ND	P	ID	ID	F	ID	ID
Pentachlorophenol 1% (2)	E	>8h	ND	ID	>8h	ND	P	ID	ID	E	>13h	ND

n-Pentane	E	>6h	ND	E	>17h	ND	P	ID	ID	E	ID	ID
Perchloroethylene	E	>6h	ND	E	>15h	ND	P	ID	ID	F	>1.3h	5.5
Phenol 85%, water sat	G	>6h	ND	E	ID	ND	E	>20h	ND	P	39m	>1500
Propyl Acetate	E	>6h	ND	P	ID	ID	G	2.7h	2.86	P	17m	72.5
Propylenediamine	ID	ID	ID	E	38m	ND	E	>8h	ND	F	ID	ID
Pyridine	ID	ID	ID	P	ID	74	G	>8h	ND	P	ID	ID
Red Fuming Nitric Acid	P	35m	ID	P	ID	ID	P	ID	ID	P	ID	ID
Sodium Hydroxide 50%	E	>6h	ND	G	ID	ID	E	ID	ID	G	ID	ID
Styrene	G	>4h	ND	G	ID	ID	P	ID	ID	P	ID	ID
Sulfuric Acid, 3 Molar	E	>6h	ND	E	ID	ID	G	ID	ID	P	ID	ID
Tetrachloroethylene	E	>6h	ND	E	>17h	ND	P	ID	ID	F	1.3h	5.5
Tetraethylenepentamine	ID	ID	ND	E	>8h	ND	E	>8h	ND	F	ID	ID
Tetrafluoroethylene	E	ID	ID	E	>8h	ND	E	>8h	ND	ID	ID	ID
Tetrahydrofuran	E	>8h	ND	P	4m	327	F	31m	112	P	4m	167
Thiophene	ID	>6h	ND	E	>8h	ND	P	1.8h	17	P	ID	ID
Toluene	E	>6h	ND	E	>16h	ND	F	21m	22.1	P	11m	68.1
Toluene Diisocyanate	E	>8h	ND	E	>16h	ND	E	>8h	ND	G	3.7h	1.8
Trichloroethane	E	>6h	ND	G	7.4h	0.24	P	18m	550	P	8m	283
1,1,1 Trichloroethane	E	>6h	ND	E	>15h	ND	P	ID	ID	F	41m	76.4
1,1,2 Trichloroethane	ID	ID	ID	E	>8h	ND	P	5.7h	7	P	ID	ID
Triethylamine	ID	ID	ID	E	>8h	ND	P	ID	ID	E	>8h	ND
Vinyl Chloride	E	>8h	ND	G	4.4h	0.098	P	ID	ID	G	5.7h	0.14
Xylene	E	>24h	ND	E	>8h	ND	P	ID	ID	P	ID	ID

(1)The data for Silver Shield™, Viton™, Butyl and Nitrile gloves were provided by Siebe North Inc, Charleston, SC; information on Neoprene and Polyvinyl Chloride (PVC) gloves were supplied by Pioneer Industrial Products, Williard, OH.

(2)In Kerosene

E=Excellent; **G**=Good; **F**=Fair; **P**=Poor; **ND**=None detected; **ID**=Insufficient Data;
D=Degradation; **BT**=Breakthrough, amount of elapsed time after initial exposure before
the chemical can be analytically detected on the inside surface of the glove;
PR=Permeation Rate is expressed in mg/m²/sec. PR can be used for estimating glove
thickness required; for a given material, thicker is more resistant.

Note: Silver Shield gloves may be worn as liners under other glove types to enhance
protection.

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