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CHEMICAL GLOVE RESISTANCE GUIDE

Ansell

When reviewing the following recommendations, remember that tests are conducted under laboratory conditions, and that actual workplace conditions usually dictate a *combination* of performance capabilities. A product's resistance to cuts, punctures, and abrasion must also be taken into account as a critical usage factor. A glove with excellent permeation resistance may not be adequate it if tears or punctures easily. Always factor in the physical performance requirements of the job or application when selecting a chemical-resistant glove.

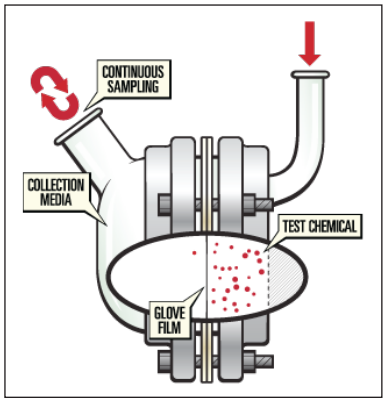
Ansell's ASTM standard permeation and degradation are presented on the following pages as an aid in determining the general suitability of various products for use with specific chemicals. Because the conditions of ultimate use are beyond our control, and because we cannot run permeation tests in all possible work environments and across all combinations of chemicals and solutions, these recommendations are advisory only.

THE SUITABILITY OF THE PRODUCT FOR A SPECIFIC JOB MUST BE DETERMINED BY TESTING BY THE PURCHASER.

DEFINITION OF KEY TERMS

Permeation is a process by which a chemical can pass through a protective film without going through pinholes, pores, or other visible openings. Individual molecules of the chemical enter the film and "squirm" through by passing between the molecules of the glove compound or film. In many cases the permeated material may appear unchanged to the human eye.

Chemical permeation can be described in simple terms by comparing it to what happens to the air in a balloon after several hours. Although there are no holes or defects, and the balloon is tightly sealed, the air gradually passes through (permeates) its walls and escapes. This simple example uses gas permeation, but the principle is the same with liquids or chemicals.



Permeation data is presented in two ways: Breakthrough time and Color code. Breakthrough times (min.) are the times observed from the start of the test to first detection of the chemical on the other side of the sample (see test chamber setup). These times represent how long a glove can be expected to provide effective permeation resistance when totally immersed in the test chemical.

The color code provides direction on the glove's acceptance against the chemical. Green reflects the glove will work well against the chemical versus red suggesting the glove should not be recommended. The colors in between reflect protection acceptance based on the exposure time.

Degradation is a reduction in one or more physical properties of a glove material due to contact with a chemical. Certain glove materials may become hard, stiff, or brittle, or they may grow softer, weaker, and swell to several times their original size. If a chemical has a significant impact on the physical properties of a glove material, its permeation resistance is quickly impaired.

Please note, however, that permeation and degradation do not always correlate.

Degradation and Permeation Breakthrough Times

Material				Butyl		LLDPE		Natural Rubber/ Neoprene		Neoprene		Neoprene		Nitrile		Nitrile		Polyvinyl Alcohol		PVC		Viton Butyl	
Thickness (mil)				14		2.5		27		18		55		11		18		37.5		70		12	
Product Name / Style				ChemTek™		Barrier®		Chemi-Pro®		Neoprene®		Scorpio®		Solvex®		AlphaTec®		PVA™		Snorkel®		ChemTek™	
Type	CAS	Chemical name	%	38-514 		02-100 		87-224 		29-865 		08-352 08-354 		37-145 		58-435 		15-554 		04-414 		38-612 	
				D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P
sgl	64-19-7	Acetic acid, glacial	100	E	>480'	E	120-240'	E	60-120'	E	>480'	E	>480'	G	30-60'	G	120-240'	NR	<10'	F	10-30'	DD	>480'
sgl	67-64-1	Acetone	100	E	240-480'	E	>480'	G	<10'	G	<10'	G	<10'	NR	<10'	NR	<10'	P	60-120'	NR	<10'	DD	120-240'
sgl	75-05-8	Acetonitrile	100	E	>480'	E	>480'	E	10-30'	E	10-30'	E	10-30'	F	<10'	F	10-30'	E	60-120'	NR	<10'	DD	>480'
sgl	79-10-7	Acrylic Acid	100	–	>480'	–	>480'	E	60-120'	E	>480'	E	>480'	G	30-60'	G	30-60'	NR	<10'	NR	30-60'	–	>480'
sgl	NR	Acrylonitrile	100	E	240-480'	E	>480'	–	<10'	–	30-60'	–	30-60'	–	<10'	–	<10'	E	>480'	–	<10'	E	240-480'
sgl	107-18-6	Allyl alcohol	100	E	>480'	E	>480'	E	10-30'	E	240-480'	E	240-480'	F	30-60'	F	60-120'	P	<10'	P	60-120'	E	120-240'
sgl	1336-21-6	Ammonium Hydroxide	25	E	>480'	E	10-30'	E	10-30'	E	>480'	E	>480'	E	120-240'	E	>480'	NR	<10'	E	10-30'	E	>480'
sgl	71-43-2	Benzene	100	P	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	P	<10'	P	30-60'	E	>480'	NR	<10'	E	240-480'
sgl	98-88-4	Benzoylchloride	100	–	<10'	–	>480'	–	<10'	–	<10'	–	<10'	–	<10'	–	10-30'	–	>480'	–	<10'	–	–
sgl	80-05-7	Bisphenol A	100	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	240-480'	E	>480'	E	>480'
sgl	590-92-1	Bromopropionic acid	100	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	<10'	–	120-240'	–	>480'
sgl	111-76-2	2-Butoxyethanol	100	E	>480'	E	>480'	E	30-60'	E	>480'	E	>480'	E	240-480'	E	240-480'	E	120-240'	P	<10'	E	>480'
sgl	123-86-4	Butyl acetate	100	E	60-120'	E	>480'	NR	10-30'	NR	<10'	NR	<10'	F	10-30'	F	60-120'	G	>480'	NR	<10'	DD	<10'
sgl	71-36-3	Butyl alcohol	100	E	>480'	E	>480'	E	120-240'	E	>480'	E	>480'	E	>480'	E	>480'	F	60-120'	G	120-240'	E	>480'
sgl	75-15-0	Carbon disulfide	100	P	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	G	10-30'	G	10-30'	E	>480'	NR	<10'	E	120-240'
sgl	56-23-5	Carbon Tetrachloride	100	F	10-30'	–	240-480'	NR	<10'	NR	<10'	NR	<10'	G	240-480'	G	240-480'	E	>480'	F	10-30'	–	60-120'
sgl	67-66-3	Chloroform	100	P	<10'	E	10-30'	NR	<10'	NR	<10'	NR	<10'	NR	<10'	NR	<10'	E	>480'	NR	<10'	E	120-240'
sgl	8007-45-2	Coal Tar	100	–	<10'	–	>480'	–	10-30'	–	60-120'	–	60-120'	–	>480'	–	>480'	–	>480'	–	10-30'	–	>480'
sgl	68308-34-9	Crude oil	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	108-93-0	Cyclohexanol	100	E	>480'	E	>480'	E	10-30'	E	240-480'	E	240-480'	E	>480'	E	>480'	G	>480'	E	240-480'	E	>480'
sgl	108-94-1	Cyclohexanone	100	E	>480'	E	>480'	P	30-60'	P	30-60'	P	60-120'	F	10-30'	F	30-60'	E	>480'	NR	30-60'	P	120-240'
sgl	84-74-2	Dibutyl Phtalate	100	–	>480'	–	>480'	G	10-30'	F	60-120'	F	60-120'	G	>480'	G	>480'	E	>480'	NR	60-120'	–	–
sgl	68334-30-5	Diesel fuel	100	P	<10'	E	>480'	P	30-60'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	30-60'	E	>480'
sgl	109-89-7	Diethylamine	100	F	<10'	E	>480'	NR	<10'	P	<10'	P	<10'	F	10-30'	F	10-30'	NR	<10'	NR	10-30'	NR	10-30'
sgl	68-12-2	Dimethylformamide (DMFA)	100	E	>480'	E	>480'	E	30-60'	E	30-60'	E	30-60'	NR	10-30'	NR	10-30'	NR	10-30'	NR	10-30'	DD	>480'
sgl	67-68-5	Dimethyl Sulfoxide (DMSO)	100	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	120-240'	E	240-480'	NR	<10'	NR	<10'	DD	>480'
sgl	64742-47-8	Distillate (petroleum), hydrotreated light	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	64-17-5	Ethanol	100	E	240-480'	E	>480'	E	30-60'	E	240-480'	E	240-480'	E	240-480'	E	>480'	NR	<10'	G	60-120'	E	>480'

D = Degradation P = Permeation
See legend at the end for degradation ratings.

Degradation and Permeation Breakthrough Times

Material				Butyl		LLDPE		Natural Rubber/ Neoprene		Neoprene		Neoprene		Nitrile		Nitrile		Polyvinyl Alcohol		PVC		Viton Butyl	
Thickness (mil)				14		2.5		27		18		55		11		18		37.5		70		12	
Product Name / Style				ChemTek™		Barrier®		Chemi-Pro®		Neoprene®		Scorpio®		Solvex®		AlphaTec®		PVA™		Snorkel®		ChemTek™	
Type	CAS	Chemical name	%	38-514 		02-100 		87-224 		29-865 		08-352 08-354 		37-145 		58-435 		15-554 		04-414 		38-612 	
				D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P
sgl	141-78-6	Ethyl acetate	100	E	30-60'	E	>480'	F	<10'	F	10-30'	F	10-30'	NR	10-30'	NR	10-30'	F	>480'	NR	<10'	DD	10-30'
sgl	75-04-7	Ethylamine	100	–	>480'	–	>480'	–	10-30'	–	60-120'	–	60-120'	–	60-120'	–	60-120'	–	240-480'	–	<10'	—	—
sgl	110-80-5	Ethyl Glycol	100	E	>480'	E	>480'	E	10-30'	E	240-480'	E	240-480'	G	120-240'	G	120-240'	E	60-120'	P	10-30'	E	60-120'
sgl	107-21-1	Ethylene Glycol	100	–	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	F	120-240'	E	>480'	–	>480'
sgl	111-15-9	Ethylglycol acetate	100	E	>480'	E	>480'	E	10-30'	G	30-60'	G	30-60'	F	60-120'	F	60-120'	E	>480'	NR	10-30'	DD	–
sgl	50-00-0	Formaldehyde	35	–	240-480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	<10'	–	>480'	–	>480'
sgl	64-18-6	Formic acid	100	E	240-480'	E	>480'	E	60-120'	E	>480'	E	>480'	F	10-30'	F	30-60'	NR	<10'	–	120-240'	–	240-480'
sgl	76-13-1	Freon TF	100	–	<10'	–	–	NR	<10'	E	240-480'	E	240-480'	E	>480'	E	>480'	G	240-480'	NR	<10'	–	–
sgl	96-48-0	Gamma Butyrolactone	100	E	>480'	E	>480'	E	240-480'	E	120-240'	E	120-240'	NR	<10'	NR	10-30'	E	120-240'	NR	<10'	E	>480'
sgl	8006-61-9	Gasoline	100	F	10-30'	E	>480'	NR	<10'	NR	30-60'	NR	30-60'	E	120-240'	E	240-480'	G	>480'	P	60-120'	E	>480'
sgl	111-30-8	Glutaraldehyde, aquous solution	50	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	>480'	E	>480'
sgl	142-82-5	Heptane	100	P	<10'	E	>480'	P	<10'	E	120-240'	E	120-240'	E	>480'	E	>480'	E	>480'	NR	<10'	E	>480'
sgl	999-97-3	Hexamethyldisilazane	100	E	240-480'	E	>480'	F	60-120'	E	>480'	E	>480'	E	>480'	E	>480'	G	>480'	P	60-120'	E	240-480'
sgl	110-54-3	Hexane	100	P	<10'	E	>480'	P	<10'	E	30-60'	E	30-60'	E	>480'	E	>480'	G	>480'	NR	<10'	E	>480'
sgl	7647-01-0	Hydrochloric acid	37	–	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	>480'	–	>480'
sgl	7664-39-3	Hydrofluoric acid	48	E	>480'	E	>480'	–	>480'	E	>480'	E	>480'	E	30-60'	E	120-240'	NR	<10'	E	>480'	E	>480'
sgl	7722-84-1	Hydrogen Peroxide	30	E	>480'	E	>480'	G	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	>480'	E	>480'
sgl	540-84-1	Iso-octane	100	P	30-60'	E	>480'	P	30-60'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	P	30-60'	E	>480'
sgl	78-59-1	Isophorone	100	–	>480'	–	>480'	–	10-30'	–	60-120'	–	60-120'	–	120-240'	–	240-480'	–	>480'	–	<10'	–	–
sgl	67-63-0	Isopropanol	100	E	>480'	E	>480'	E	120-240'	E	>480'	E	>480'	E	>480'	E	>480'	NR	60-120'	G	120-240'	E	>480'
sgl	64742-81-0	Kerosene	100	P	<10'	E	>480'	P	10-30'	E	>480'	E	>480'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	110-16-7	Maleic acid, aquous solution	50	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	G	>480'	E	–
sgl	67-56-1	Methanol	100	E	>480'	E	>480'	E	30-60'	E	120-240'	E	240-480'	E	30-60'	E	60-120'	NR	<10'	G	30-60'	DD	>480'
sgl	107-98-2	1-Methoxy-2-Propanol	100	–	240-480'	–	>480'	–	10-30'	–	60-120'	–	60-120'	–	120-240'	–	240-480'	–	>480'	–	10-30'	–	240-480'
sgl	108-65-6	1-Methoxy-2-propylacetate	100	–	>480'	–	>480'	–	<10'	–	10-30'	–	10-30'	–	120-240'	–	120-240'	–	>480'	–	<10'	–	10-30'
sgl	96-33-3	Methyl acrylate	100	–	60-120'	–	>480'	–	<10'	–	<10'	–	<10'	–	<10'	–	10-30'	–	>480'	–	<10'	–	<10'
sgl	78-93-3	Methyl ethyl ketone	100	E	60-120'	E	>480'	P	<10'	P	<10'	P	<10'	NR	<10'	NR	<10'	F	30-60'	NR	<10'	DD	10-30'
sgl	108-10-1	Methyl Isobutyl Ketone	100	–	120-240'	–	>480'	–	<10'	–	10-30'	–	10-30'	–	<10'	–	10-30'	–	60-120'	–	<10'	–	10-30'

D = Degradation P = Permeation
See legend at the end for degradation ratings.

Degradation and Permeation Breakthrough Times

Material				Butyl		LLDPE		Natural Rubber/ Neoprene		Neoprene		Neoprene		Nitrile		Nitrile		Polyvinyl Alcohol		PVC		Viton Butyl	
Thickness (mil)				14		2.5		27		18		55		11		18		37.5		70		12	
Product Name / Style				ChemTek™		Barrier®		Chemi-Pro®		Neoprene®		Scorpio®		Solvex®		AlphaTec®		PVA™		Snorkel®		ChemTek™	
Type	CAS	Chemical name	%	38-514 		02-100 		87-224 		29-865 		08-352 08-354 		37-145 		58-435 		15-554 		04-414 		38-612 	
				D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P
sgl	1634-04-4	Methyl tert-Butyl Ether	100	G	10-30'	E	>480'	NR	<10'	P	30-60'	P	30-60'	E	>480'	E	>480'	G	>480'	NR	<10'	–	<10'
sgl	74-89-5	Methylamine, aquous solution	40	E	>480'	E	>480'	E	10-30'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	60-120'	E	–
sgl	75-09-2	Methylenechloride	100	G	<10'	E	10-30'	NR	<10'	R	<10'	NR	<10'	NR	<10'	NR	<10'	G	>480'	NR	<10'	E	30-60'
sgl	80-62-6	Methylmethacrylate	100	E	30-60'	E	>480'	NR	<10'	NR	<10'	NR	<10'	P	10-30'	P	10-30'	G	240-480'	NR	<10'	DD	<10'
sgl	8012-95-1	Mineral Oil	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	108-90-7	Monochlorobenzene	100	P	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	NR	<10'	NR	10-30'	E	>480'	NR	<10'	F	>480'
sgl	141-43-5	Monoethanolamine	100	–	>480'	–	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	60-120'	E	>480'	E	240-480'
sgl	64742-82-1	Naptha (petroleum), hydrodesulfurized heavy	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	64742-49-0	Naphtha, petroleum, hydrotreated light	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	8030-30-6	Naphta VM&P	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	7697-37-2	Nitric acid	70	–	>480'	E	>480'	NR	120-240'	E	>480'	E	>480'	NR	30-60'	NR	30-60'	NR	<10'	F	30-60'	–	–
sgl	98-95-3	Nitrobenzene	100	E	>480'	E	>480'	F	<10'	NR	<10'	NR	<10'	NR	60-120'	NR	60-120'	G	>480'	NR	<10'	E	>480'
sgl	872-50-4	N-methyl-2-pyrrolidone	100	E	>480'	E	>480'	F	10-30'	NR	10-30'	NR	10-30'	NR	10-30'	NR	10-30'	NR	<10'	NR	<10'	DD	60-120'
sgl	1120-21-4	n-Undecane	100	P	10-30'	E	>480'	P	30-60'	E	120-240'	E	120-240'	E	>480'	E	>480'	G	>480'	NR	<10'	E	>480'
sgl	111-87-5	Octyl alcohol	100	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	G	240-480'	F	240-480'	E	>480'
sgl	144-62-7	Oxalic acid, aquous solution	99	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	>480'	E	>480'
sgl	79-21-0	Peracetic acid	39	–	>480'	–	>480'	–	60-120'	–	>480'	–	>480'	–	120-240'	–	60-120'	–	<10'	–	120-240'	–	>480'
sgl	127-18-4	Perchloroethylene	100	P	<10'	E	>480'	NR	10-30'	NR	<10'	NR	<10'	G	120-240'	G	240-480'	E	>480'	NR	<10'	E	>480'
sgl	108-95-2	Phenol	100	E	>480'	E	>480'	E	120-240'	E	>480'	E	>480'	NR	60-120'	NR	60-120'	F	>480'	G	120-240'	E	>480'
sgl	7664-38-2	Phosphoric acid	85	–	>480'	E	>480'	G	>480'	G	>480'	G	>480'	E	>480'	E	>480'	NR	<10'	G	>480'	–	>480'
sgl	110-85-0	Piperazine	100	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'
sgl	71-23-8	Propanol	100	E	>480'	E	>480'	E	120-240'	E	>480'	E	>480'	E	>480'	E	>480'	P	60-120'	F	120-240'	E	>480'
sgl	107-12-0	Propionitrile	100	–	>480'	–	>480'	–	<10'	–	60-120'	–	60-120'	–	<10'	–	10-30'	–	>480'	–	<10'	–	<10'
sgl	109-60-4	Propylacetate	100	E	60-120'	E	>480'	P	<10'	P	<10'	P	<10'	F	10-30'	F	10-30'	G	>480'	NR	<10'	DD	<10'
sgl	57-55-6	Propylene Glycol	100	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'	–	>480'
sgl	110-86-1	Pyridine	100	E	60-120'	E	>480'	P	10-30'	NR	<10'	NR	<10'	NR	10-30'	NR	10-30'	G	<10'	NR	<10'	DD	30-60'
sgl	1310-73-2	Sodium Hydroxide	50	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	G	>480'	E	>480'

D = Degradation P = Permeation
See legend at the end for degradation ratings.

Degradation and Permeation Breakthrough Times

Material				Butyl		LLDPE		Natural Rubber/ Neoprene		Neoprene		Neoprene		Nitrile		Nitrile		Polyvinyl Alcohol		PVC		Viton Butyl	
Thickness (mil)				14		2.5		27		18		55		11		18		37.5		70		12	
Product Name / Style				ChemTek™		Barrier®		Chemi-Pro®		Neoprene®		Scorpio®		Solvex®		AlphaTec®		PVA™		Snorkel®		ChemTek™	
Type	CAS	Chemical name	%	38-514 		02-100 		87-224 		29-865 		08-352 08-354 		37-145 		58-435 		15-554 		04-414 		38-612 	
				D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P
sgl	8052-41-3	Stoddard Solvent	100	P	<10'	E	>480'	G	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	F	10-30'	E	>480'
sgl	100-42-5	Styrene	100	P	10-30'	E	>480'	NR	<10'	NR	<10'	NR	<10'	NR	10-30'	NR	10-30'	G	>480'	NR	10-30'	E	>480'
sgl	7664-93-9	Sulphuric acid	96	E	240-480'	E	>480'	NR	120-240'	F	240-480'	F	240-480'	NR	30-60'	NR	120-240'	NR	<10'	G	30-60'	E	>480'
sgl	109-99-9	Tetrahydrofuran	100	F	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	NR	<10'	NR	10-30'	P	30-60'	NR	<10'	DD	<10'
sgl	110-01-0	Tetrahydrothiophene	100	–	>480'	–	>480'	–	10-30'	–	<10'	–	<10'	–	10-30'	–	30-60'	–	>480'	–	10-30'	–	–
sgl	7719-09-7	Thionylchloride	100	–	60-120'	–	120-240'	–	<10'	–	<10'	–	<10'	–	<10'	–	<10'	–	120-240'	–	<10'	–	–
sgl	108-88-3	Toluene	100	P	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	F	10-30'	F	10-30'	G	>480'	NR	<10'	E	>480'
sgl	79-01-6	Trichloroethylene	100	NR	<10'	E	>480'	NR	<10'	NR	<10'	NR	<10'	NR	10-30'	NR	10-30'	E	>480'	NR	<10'	DD	120-240'
sgl	1330-78-5	Tricresyl Phosphate	100	E	>480'	–	>480'	E	>480'	F	>480'	F	>480'	E	>480'	E	<480'	G	>480'	F	>480'	E	>480'
sgl	102-71-6	Triethanolamine	100	–	>480'	–	>480'	–	240-480'	E	>480'	E	>480'	E	240-480'	E	>480'	G	240-480'	E	>480'	–	240-480'
sgl	121-44-8	Triethylamine	100	–	<10'	–	>480'	–	<10'	–	<10'	–	<10'	–	>480'	–	>480'	–	>480'	–	<10'	–	240-480'
sgl	64742-88-7	White Spirit	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'
sgl	1330-20-7	Xylene	100	P	10-30'	E	>480'	NR	<10'	NR	10-30'	NR	10-30'	F	10-30'	G	30-60'	E	>480'	NR	<10'	E	>480'

Legend

Permeation Breakthrough Times (min)	
<10	Not Recommended
10-30	Splash Protection
30-60	Splash Protection
60-120	Medium Protection
120-240	Medium Protection
240-480	Good Protection
>480	Good Protection

Degradation Ratings	
DD	Delamination of Outer Layer
NR	Not Recommended
P	Poor
F	Fair
G	Good
E	Excellent

If a specific Ansell glove or chemical is not found on this chart, please contact your Ansell representative or call us at 800-800-0444 to conduct a Chemical Guardian.

The permeation breakthrough times presented in this chart were evaluated according to the ASTM F739 standard. The letters used in this chart correspond to the degradation ratings, whereas the colors represent the permeation breakthrough levels (see legend for more information).

Disclaimer

Recommendations are based on extrapolations from laboratory test results and information regarding the composition of chemicals and may not adequately represent specific conditions of end use. Synergistic effects of mixing chemicals have not been accounted for. For these reasons, and because Ansell has no detailed knowledge of or control over the conditions of end use, any recommendations must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.

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