

# Chemical Resistance Guide

**Caveat**

Note: This chart is for guidance only and is based upon data which has been generated by a laboratory test representing complete immersion of the test sample. In such tests it is not possible to simulate each condition of use. It is the responsibility of the purchaser to establish that the protective gloves are suitable for the particular application in which protection is required.



## BM Polyco Test Laboratories

The state-of-the-art Technical Department laboratories at BM Polyco are equipped to carry out a range of tests on protective gloves. The chemical and physical test laboratories are accredited by UKAS (United Kingdom Accredited Services) to the BSEN ISO / IEC 17025:2000 Standard.



### EN374-3 Determination of Resistance to Permeation by Chemicals

Resistance to permeation is assessed by measuring the time for a chemical to breakthrough the glove material. Samples, cut from the palms of the gloves, are placed in a permeation cell which enables the chemical to be placed in contact with the outer surface of the gloves. Collection air

or water is passed through the cell to collect any chemical that has broken through to the inside surface of the glove sample. Polyco laboratories are equipped with an infra-red spectrometer (to detect solvents), conductivity/pH electrodes (to detect acids, alkalis and salts) and UV/Visible spectrophotometer (to detect high boiling point water soluble chemicals and solvents).



## Polyco Range

Disposable Natural Rubber		Unsupported Natural Rubber							
Finex	Finex PF	Optima	Jet						
		Processor II	Chemprotec						
		Puma	(Available in three thicknesses)						
		SuperGrip							
		Maxima							
Disposable Nitrile		Unsupported Nitrile							
Finite	Finite PF	Nitri Tech II							
	Indigo	N-Dura							
		Novex							
		Ni-Tone							
Disposable PVC		Unsupported PVC							
Finesse	Finesse PF	Pura							
		Supported PVC							
		Vyking	Polygen						
		Vyflex	Polysol						
		Polychem	Polygen Plus						
		Vyclear	Long John						
Isolator / Dry Box Gauntlets and Sleeves									
A full range of materials including Hypalon, Butyl, Viton and Polyurethane, along with the more standard Latex and Neoprene are available									
Performance Level	1	2	3	4	5	6			
Breakthrough time (min)	>10	>30	>60	>120	>240	>480			
Degradation									
<b>E</b>	Excellent	<b>G</b>	Good	<b>F</b>	Fair	<b>P</b>	Poor	<b>N</b>	Not Recommended

Common Names	IUPAC Names	CAS (Chemical Abstracts Service Registry No)	Disposable Natural Rubber Permeation Degradation		Unsup. Natural Rubber Permeation Degradation		Disposable Nitrile Permeation Degradation		Unsupported Nitrile Permeation Degradation		Disposable PVC Permeation Degradation		Unsupported PVC Permeation Degradation		Supported PVC Permeation Degradation	
Propylene glycol monomethyl ether	1-Methoxy-2-propanol	107-98-2	1	E	4	E			5	P						
Acetaldehyde	Ethanal	25-07-0			0	E	0	N	0	N					0	E
Acetic Acid 84%	Ethanoic acid 84%	64-19-7					0	P	5	G					6	E
Acetone	Propanone	67-64-1			1	E			0	N					0	P
Acetonitrile	Cyanomethane / Methyl cyanide	75-05-8			0	E	0	N	0	N					1	E
Acrylamide 50%	2-propenamide	79-06-1					6	E	6	E					6	E
Acrylonitrile	Propenenitrile	107-13-1					0	N	0	N					0	E
Ammonium Fluoride	Ammonium Fluoride 40%	12125-01-8	5		6	E		E	6	E	5	E	6	E		
Strong ammonia solution 29%	Ammonium Hydroxide 29%	1336-21-6					4	E	4	E					2	E
Amyl acetate / Banana oil	n-pentyl ethanoate	628-63-7			1	F	0	N	3	P					2	G
Amyl Alcohol	n-pentanol	71-41-8			1		3	F	6	E					6	E
Aniline	Aminobenzene / Benzenamine / Phenylamine	62-53-3	0		1		0	P	0	N	1		4			
Anionic surfactant	Potassium aleate	143-18-0	6	E	6	E			5	E						
Battery Acid	40% Sulphuric acid	7664-93-9			6	E	6	E	6	E			6		6	E
Benzoic aldehyde / Benzenecarbanol	Benzaldehyde	100-52-7			1		0	N	0	N					3	N
Benzene	Benzene	71-43-2			0	N	0	N	1	N					1	F
Bromoform	Tribromomethane	75-25-2					0	N	0	P					2	P
alpha - bromopropionic acid	Bromopropionic acid	598-72-1			4				4				4			
Butyl alcohol	Butanol	71-36-3	0	E	2	E	1	E	6	E	0		4		3	E
Butyl Acetate	Butyl ethanoate	123-86-4			1	P	0	N	2	P					1	
Butyl Cellosolve	2-Butoxyethanol	111-76-2	0		2				3						6	E
Carbon Tetrachloride	Tetrachloromethane	56-23-5					0	N	6	E			1			
Cationic Surfactant		-	6	E	6	E			6	E						
Cellosolve	2-Ethoxyethanol	110-80-5	0	E	2	E			5	F						
Chloroform	Trichloromethane	67-66-3			0	N	0	N	0	N					0	N
Chromic Acid 50%	Chromium trioxide solution	1333-82-0					6	E	6	E			6			
Citric Acid	2-Hydroxy-1,2,3,-propanetricarboxylic acid	77-92-9	6	E	6	E	6	E	6	E	6		6			
Cyclohexane	Hexamethylene	110-82-7	3	E			2	E	6	E					2	E
Cyclohexyl alcohol / Hexalin	Cyclohexanol	108-93-0	3	E	5	E	5	E	6	E	3					
Pimelic ketone	Cyclohexanone	108-94-1			1	P	0	N	2	P					2	
Hexahydroaniline	Cyclohexylamine	108-91-8	0	P	1	P			5	P						
Diacetone Alcohol	4-Hydroxy-4-methyl-2-pentanone	123-42-2	1	E	1	E			1	P						
Methylene chloride	Dichloromethane	75-09-2			0	P	0	N	0	N					0	N
Diethanamine	Diethylamine	109-89-7					0	N	2	F					0	P
Dimethyl Formamide	N,N-dimethyl formamide	68-12-2	0	E	1	E	0	N	2	N					0	P
Dioctyl phthalate	1,2-Benzene dicarboxylic acid, dioctyl ester	117-81-7	6	G	6	E			5	E						
Epichlorohydrin	1-Chloro-2,3-epoxypropane	106-89-8	0	E	0	E			0	N						
Ethyl alcohol	Ethanol	67-17-5	0	G	2	E	1	E	4	E			3			
Ethanolamine/monoethanolamine	2-Amino ethanol	141-43-5	4	E	6	E	6	E	6	E	4					
Ethyl Acetate	Ethyl ethanoate	141-78-6	0		0	E	0	N	1	P					0	P
Ethyl Ether / Diethyl ether	Diethyl oxide	60-29-7	0				0	E	2	E						
Ethyl Lactate	Ethyl-2-hydroxypropionate	97-64-3	0	E	2	E			3	P						
Ethylene Glycol	1,2-Dihydroxyethane / 1,2-Ethanediol	107-21-1	6	E	6	E	6	E	6	E			6			
Formaldehyde 37%	Methanal 37%	50-00-0	0	E	6	E	6	E	6	E	1		3		6	

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Formic Acid 90%	Methanoic acid 90%	64-18-6	0	F	3	F			2	P			5			
Furfural	2-Furancarboxaldehyde	98-01-1	0	E	1	E	0	N	0	N						
Acetic Acid Glacial	Ethanoic acid glacial	64-19-7	0	G	2	G	1		2	P	2		4			
Glutaraldehyde 50%	1,5-Pentanedial 50%	111-30-8													6	E
Glycerol	1,2,3-Propanetriol / 1,2,3-Trihydroxypropane	56-81-5	6	E	6	E			6	E						
Hexane	Hexane	110-54-3	0		0	P	1	E	6	E					0	E
Hydrazine	Hydrazine 65%	302-01-2	1		4		0		6		5		6			
Muriatic acid 10%	Hydrochloric Acid 10%	7647-01-0			6		6	E	6	E			6			
Muriatic acid 37%	Hydrochloric Acid 37%	7647-01-0	2	G	6	E	6	E	6	E						
Hydrogen Fluoride, 48% (aqueous)	Hydrofluoric Acid 48%	7664-39-3	1	P	4	E			0	F			2			
Hydrogen Peroxide 30%	Hydrogen Dioxide	7722-84-1	6	E	6	E	6	N	6	G	5		6			
Hydroquinone / Quinol	1,4-Benzenediol / 1,4-Dihydroxybenzene	123-31-9	6	E	6	E			6	E			6			
Isobutanol	2-Methylpropanol	78-83-1	0		1		0	P	6	E	1		1			
Isopropanol	Propan-2-ol / 2-Propanol	67-63-0	0	E	3	E	1	E	6	E	0		4			
Jeffamine	4,4-Diamino phenyl methane	101-77-9	6	G	6	E			6	E						
Kerosene	Coal Oil	8008-20-6			3	P	6	E	6	E	2		5			
Lactic Acid	2-Hydroxypropionic acid	50-21-5			6				6				6			
Lauric Acid (30% in Ethanol)	Dodecanoic acid (30% in ethanol)	143-07-7			6		6	E	6	E			1			
Lubricating Oil	-	-	6	F	6	E			6	E						
Maleic Acid	cis-Butenedioic acid	110-16-7			6		6		6		5		6			
Methyl alcohol	Methanol	67-56-1	0	E	1	E	0	G	1	F			2		2	G
Methyl Ethyl Ketone	Butan-2-one / 2-Butanone	78-93-3	0		0	F	0	N	1	N						
Methyl Isobutyl Ketone	4-Methyl-2-pentanone	108-10-1	0	E	1	E	0	N	0	F						
Methyl Methacrylate	2-Methyl-2-propenoic acid, methyl ester	80-62-6	0	P	1	F	0	N	0	N						
Methyl Pyrrolidone	1-Methyl-2-pyrrolidone	872-50-4	1	P	2	E	0	N	1	N						
Methyl t-Butyl Ether	t-Butyl methyl ether	1634-04-4					0	P	4	E					1	E
Methylamine 40%	Aminomethane 40%	74-89-5			2		6	E	6	E			4			
Mineral Spirits (rule 66)		64475-85-0					3	G	6	E			4			
Aqua Fortis / Hydrogen nitrate 70%	Nitric Acid (70%)	7697-37-2			5	F	0	P	0	P			5			
Aqua Fortis / Hydrogen nitrate 10%	Nitric Acid 10%	7697-37-2	6		6		6		6		5		6			
Nonionic Surfactant		-	6	E	6	E			6	E						
Octyl alcohol	1-Octanol	111-87-5			2		5	E	6	E	0		5			
Oleic Acid 98%	9-Octadecanoic acid 98%	112-80-1			6		6	E	6	E			3			
Oxalic Acid	Ethanedioic acid	6153-56-6			6				6				6			
Pentachlorophenol / PCP	Pentachlorohydroxybenzene	87-86-5							6	E			4			
Perchloric Acid 60%	Hydronium perchlorate	7601-90-3			6				6				6			
Perchloroethylene	Tetrachloroethylene	127-18-4			0	E	0	E	4	F					0	F
Petroleum Ether	Naptha (VM&P)	8032-32-4			0	P	2	G	6	E			4		0	E
Carbolic Acid	Phenol	108-95-2			3		0	N	0	N	2		3			
Carbolic Acid 7%	Phenol 7%	108-95-2	1	E	4	E			4	F						
Carbolic Acid 80%	Phenol 80%	108-95-2	1	F	3	G			2	F						
Orthophosphoric Acid 85%	Phosphoric Acid 85%	7664-38-2	6	E	6		6	E	6	E	5		6			
Picric acid	2,4,6-Trinitrophenol	88-89-1	1	E	3	G			4	G			2			
Potassium Hydroxide	Potassium Hydroxide 45%	1310-58-3	6	E	6	E	6	E	6	E			6			

Common Names	IUPAC Names	CAS (Chemical Abstracts Service Registry No)	Disposable Natural Rubber		Unsup. Natural Rubber		Disposable Nitrile		Unsupported Nitrile		Disposable PVC		Unsupported PVC		Supported PVC	
			Permeation	Degradation	Permeation	Degradation	Permeation	Degradation	Permeation	Degradation	Permeation	Degradation	Permeation	Degradation	Permeation	Degradation
Propanol	Propanol	71-23-8	0	E	2	E	1	P	6	G						
Pyridine	Pyridine	110-86-1	0	P	1	F			0	N						
Soda ash, carbonic acid	Sodium Carbonate	497-19-8	6	E	6	E			6	E						
Table Salt	Sodium Chloride	7647-14-5	6	E	6	E			6	E						
Caustic soda, 10%	Sodium Hydroxide 10%	1310-73-2	6		6		5		6		6					
Caustic soda, 50%	Sodium Hydroxide 50%	1310-73-2	6	E	6	E	6	E	6	E	5		6		5	E
Bleach	Sodium Hypochlorite	7681-52-9	6	E	6	E			6	E						
Bleach	Sodium Hypochlorite 4-6%	7681-52-9					6	E	6	E					6	E
Stoddard Solvent / White spirit	Naphtha with 10-15% aromatics (bp 150-200°C)	8002-41-3			0	P	6	E	6	E	2		5			
Battery Acid	Sulphuric Acid 50%	7664-93-9	6	E	6	E	6	E	6	E					6	E
Oleum	Sulphuric Acid 98%	8014-96-7			4	F	0	P	3	P	0		4		3	E
Tannic Acid 65%	Gallotannic acid / Gallotannin	1401-55-4			6				6				6			
Tetrahydrofuran	1,4-epoxybutane / butylene oxide	109-99-9					0	N	0	P					0	N
Toluene	Methylbenzene	108-88-3			0	P	0	N	1	P					0	P
Triclene	Trichloroethylene	79-01-6					0	N	0	N					0	N
Tricresyl Phosphate	Phosphoric acid tris (methyl phenyl ester)	1330-78-5			2		1	G	6	E	5		6			
TEA / Trolamine / Triethylamine	Triethylamine	102-71-6	6		6		6	E	6	E	5		6			
Turpentine / Gum spirits / Terpene		8006-64-2	0	N	2	N	0	N	2	E						
Unleaded Petrol		71-43-2			0	P			6	G						
Xylene	Dimethyl benzene	1330-20-7			0	P	0	N	2	P					1	P

## VITOCHEM

Examples of chemicals for which Vitochem is recommended:

Class	Chemical
Aromatic Compounds	Phenols Xylene
Chlorinated Solvents	Perchloroethylene Carbon Tetrachloride Chloroform Dichloromethane
Alcohols	Butanol Methanol Isopropanol
Mineral / Inorganic Acids	Hydrochloric Acid Nitric Acid Sulphuric Acid
Cyclic Compounds	Cyclohexane
Alkalis	Ammonium Hydroxide
Fuels	Diesel

## BUTOCHEM

Examples of chemicals for which Butochem is recommended:

Class	Chemical
Ketones	Acetone Methyl Ethyl Ketone Methyl Isobutyl Ketone
Nitriles	Acetonitrile
Esters	Ethyl Acetate
Amides	Dimethylformamide
Alcohols	Ethanol Butanol
Mineral / Inorganic Acids	Hydrochloric Acid Nitric Acid Sulphuric Acid
Alkalis	Ammonium Hydroxide

## DURAPRENE III

Examples of chemicals for which Duraprene III is recommended:

Class	Chemical
Alkali	Ammonium hydroxide Sodium hydroxide (50%) Sodium hypochlorite Potassium hydroxide
Mineral/inorganic acids	Sulphuric acid (50%) Hydrochloric acid (37%) Chromic acid (50%) Phosphoric acid (85%) Nitric acid (70%) Perchloric acid
Organic acids	Lauric acid Acetic acid Maleic acid Citric acid Tannic acid
Alcohols	Ethylene glycol Isopropanol Isobutanol Octyl alcohol Propanol
Amines	Ethanolamine Triethanolamine
Others	Formaldehyde (37%) Propylene glycol monomethyl ether

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