MICROGARD®

Limited life and single use
high performance chemical protective
garments and accessories

		Microgard® / Microchem® Fabric -	MICROGARD 2500		MICROCHEM 3000			MICROCHEM 4000		
		Test Method -	EN ISO 6529		EN374-3	EN369		EN374-3	EN369	
		Normalised Breakthrough Time Detected at -	0.1μg/cm²/min		0.1μg/cm²/ min	1.0μg/cm²/min		1.0μg/cm²/ min	1.0μg/cm²/min	
Chemical	**CAS Number**	**Synonyms**		**EN Class**			**EN Class**			**EN Class**
2-(2 Amino Ethoxy Ethanol)	n/a		NT		NT	NT		NT	>480	6
2-(Dimethyl Amino) Pyridine 99+%	n/a		NT		NT	57	2	NT	NT	
2, Ethyhexanoic Acid	149-57-5		NT		NT	>480	6	NT	>480	6
2,4 Difluoroaniline	367-25-9		NT		NT	NT		NT	>480	6
2-2 (Amino Ethoxy Ethanol)	n/a		NT		NT	>480	6	NT	>480	6
2-Aminoethanol (98wt%)	96-80-0		NT		NT	NT		NT	>480	6
2-Chloro-Acryl-Nitrile	n/a		NT		NT	NT		NT	>480	6
2-Chloroethanol 99%	107-07-3		NT		NT	>480	6	NT	NT	
3,4-Dichlorobenzotrifluoride (Liquid)	526-84-7		NT		NT	NT		NT	>480	6
3-N, N-Diethylenetriamine	111-40-0		NT		NT	NT		NT	>480	6
4-Cloroaniline 75ºC	106-47-8		NT		NT	NT		NT	>480	6
Acetic Acid Glacial	64-19-7	Pyroligneous Acid (crude)	NT		NT	>480	6	NT	>480	6
Acetic Anhydride	108-24-7		NT		NT	>480	6	NT	>480	6
Acetone	67-64-1	2-Propanone, Pyroacetic Ether, Dimethyl Ketone,	Imm	0	NT	21	0	NT	>480	6
Acetonitrile	75-05-8	Ethanenitrile, Methyl Cyanide,Cyanomethane,	Imm	0	NT	5	0	NT	>480	6
Acrylamide	79-06-1		NT		NT	>480	6	NT	>480	6
Acrylic Acid	79-10-7		NT		NT	>480	6	NT	>480	6
Acrylonitrile	75-05-8		NT		NT	NT		NT	>480	6
Ammonia (liquid - 33°c)	1336-21-6		NT		NT	2	0	NT	2	0
Ammonia Gas	7664-41-7		Imm	0	NT	2	0	NT	2	0
Ammonium Hydrogen Fluoride	1341-49-7		NT		NT	>480	6	NT	>480	6
Ammonium Hydroxide 20% v/v	1336-21-6		NT		NT	NT		NT	145	4
Amylacetate	628-63-7	Isoamyl Acetate, Banana Oil, Amylacetic Ester,	NT		NT	NT		NT	>480	6
Aniline	62-53-3	Aminobenzene, Aniline Oil, Phenylamine, Kyanol,	NT		NT	>480	6	NT	>480	6
Aqueous bacteria, staphylococcus aureus	n/a		NT		NT	>480	6	NT	>480	6
Arsenic Dust	7440-38-2		NT		NT	NT		NT	>480	6
Benlate	n/a		NT		NT	>480	6	NT	>480	6
Benzene	71-43-2	Cyclohexatriene, Benzol,	NT		NT	2	0	NT	>480	6
Benzene Sulphonyl Chloride (99%)	98-09-9		NT		NT	>480	6	NT	NT	
Benzyl Chloride (99w%)	100-44-7		NT		NT	16	1	NT	>480	6
Bromine (Pure, Liquid)	7726-95-6		NT		NT	NT		NT	2	0
Bromine Soln. (Sat'd)	n/a		NT		NT	NT		NT	10	1
Butanol n	71-36-3	Propyl Carbinol, Butyl Alcohol,	NT		NT	>480	6	NT	>480	6
Butyl Acrylate n	141-32-2		NT		NT	15	1	NT	>480	6
Carbon Disulfide	75-15-0		5	0	NT	NT		NT	NT	
Chlorine (gas)	7782-50-5		Imm	0	2	NT	0	>480	NT	6
Chlorine Water (sat'd 99.9+%)	7782-50-5		NT		NT	2	0	NT	>480	6
Chloroacetic Acid (99wt%) (Solid-vap perm.)	79-11-8		NT		NT	NT		NT	>480	6
Chloroacetic Acid Ethyl Ester (99wt%)	n/a		NT		NT	NT		NT	>480	6
Chloroacetyl Chloride	79-04-9		NT		NT	36	2	NT	>480	6
Chlorobenzene	108-90-7		NT		NT	NT		NT	>480	6
Chloroform	67-66-3		NT		NT	Imm	0	NT	11	1
Chlorosulphonic Acid	7790-94-5		NT		NT	NT		NT	69	3
Chlorotoluene o	n/a		NT		NT	NT		NT	>480	6
Chlorotoluene p	106-43-4		NT		NT	NT		NT	>480	6
Cresol m	100-84-5		NT		NT	>480	6	NT	NT	
Cresol-m in Water Solution (20g/l)	108-39-4		NT		NT	NT		NT	>480	6
Cresol-o in Water Solution (20g/l)	95-48-7		NT		NT	NT		NT	>480	6
Cresol-p in Water Solution (20g/l)	106-44-5		NT		NT	NT		NT	>480	6
Di (aminopropyl) Amine	n/a		NT		NT	NT		NT	>480	6
Dichloroacetone 1,1	n/a		NT		NT	NT		NT	>480	6
Dichloroacetone 1,3	n/a		NT		NT	NT		NT	>480	6
Dichloroethane 1,2	107-06-2		NT		NT	4	0	NT	>480	6
Dichloroethylene trans 1,2	n/a		NT		NT	2	0	NT	NT	
Dichloromethane	75-09-2	Methylene Bichloride, Methylene Chloride,	Imm	0	NT	Imm	0	NT	12	1
Diesel	68334-30-5		NT		NT	15	1	NT	>480	6
Diethanolamine (99wt%)	111-42-2		NT		NT	NT		NT	>480	6
Di-Ethyl Ether	60-29-7		NT		NT	Imm	0	NT	2	0
Diethylamine	109-89-7		Imm	0	NT	Imm	0	NT	4	0
Diethylenetriamine	111-40-0		NT		NT	NT		NT	>480	6
Difluoroaniline 2,4	367-25-9		NT		NT	>480	6	NT	NT	
Dimethyl Sulphate	77-78-1		NT		NT	>480	6	NT	>480	6
Dimethyl Sulphoxide (99+%)	67-68-5	DMSO	NT		NT	NT		NT	>480	6
Dimethylamine 40%	124-40-3		Imm	0	NT	>480	6	NT	>480	6
Dimethylformamide	68-12-2	DMF, DMFA,	Imm	0	NT	>480	6	NT	>480	6
Dipropylene Glycol Methyl Ether	34590-94-8		NT		NT	NT		NT	>480	6
Epichlorohydrin (99%)	106-89-8		NT		NT	>480	6	NT	>480	6
Epoxy Hardener WH-6 (960223)	n/a		NT		>480	NT	6	>480	NT	6
Ethanol	64-17-5	Absolute Alcohol, methylated spirits, ethyl alcohol	NT		NT	NT		NT	>480	6
Ethanolamine (98wt%)	141-43-5		NT		NT	NT		NT	>480	6
Ethyl Acetate	141-78-6	Acetic Acid Ethyl Ester, Vinegar Naphtha, Acetic Ester,	Imm	0	NT	2	0	NT	>480	6
Ethyl Benzene	100-41-4		NT		NT	NT		NT	>480	6
Ethyl Chloroacetate (99wt%)	105-39-5		NT		NT	NT		NT	>480	6
Ethylene Chlorohydrin 99%	107-07-3		NT		NT	>480	6	NT	NT	
Ethylene Diamine	n/a		NT		NT	NT		NT	>480	6
Ethylene Dibromide	106-93-4		NT		NT	NT		NT	>480	6
Ethylene Glycol	107-21-1	2-Ethanediol, Glycol,	NT		NT	>480	6	NT	>480	6
Ethylene Oxide (gas at ca. 1 Atmos)	75-21-8		NT		NT	NT		NT	>480	6
Fluorobenzene	462-06-6		NT		NT	NT		NT	105	3
Formaldehyde 37%	50-00-0	Formol, Formalin,	NT		NT	>480	6	NT	>480	6
Formic Acid 90%	64-18-6		NT		NT	>480	6	NT	>480	6
Furfural	98-01-1	Pyroligneous Aldehyde, Artificial Oil of Ants,	NT		NT	>480	6	NT	>480	6
Hexamethylene Diamine	124-09-4		NT		NT	>480	6	NT	NT	
Hexamethylene Disilazane (1,1,1,3,3,3)	n/a		NT		NT	NT		NT	>480	6
Hexane n	110-54-3		Imm	0	NT	Imm	0	NT	>480	6
Hydrobromic Acid	10035-10-6		NT		NT	>480	6	NT	>480	6
Hydrochloric Acid 36%	7647-01-0	Muriatic Acid, Hydrogen Chloride,	Imm	0	NT	>480	6	NT	>480	6
Hydrofluoric Acid 40%	7664-39-3	Fluohydric Acid	NT		NT	>480	6	NT	>480	6
Hydrofluoric Acid 60%	7663-39-3		NT		NT	NT		NT	>480	6
Hydrogen Peroxide 35%	7722-84-1	Albone, Peroxide, Hydrogen Dioxide, Hydroperoxide,	NT		NT	>480	6	NT	>480	6
Hydrogen sulphide	6/4/7783		NT		NT	NT		NT	>480	6
Isopropyl Alcohol	67-63-0	2-Propanol, IPA, Isopropanol, Petrohol, Dimethyl Carbinol,	NT		NT	>480	6	NT	>480	6
Maleic Anhydride	108-31-6		NT		NT	NT		NT	>480	6
Mercury	7439-97-6		NT		NT	>480	6	NT	>480	6
Methanol	67-56-1	Methyl Alcohol, Wood Alcohol, Wood Naphtha, Wood Spirit	Imm	0	NT	>480	6	NT	>480	6
Methyl Chloride	74-87-3		NT		NT	NT		NT	>480	6
Methyl Ethyl Ketone	78-93-3	MEK, Ethyl Methyl Ketone	NT		NT	NT		NT	>480	6
Methyl Iodide	74-88-4		NT		NT	>480	6	NT	NT	
Methyl Parathion	298-00-0	dimethyl-4-nitrophenyl, phosphorothionate	NT		NT	NT		NT	>480	6
N,N-Dimethylacetateamide (liquid)	526-84-7		NT		NT	NT		NT	>480	6
N. Methyl Pyrrolidone	872-50-4		NT		NT	>480	6	NT	>480	6
Nitric Acid Conc (70%)	7697-37-2	Aquafortis,	NT		NT	>480	6	NT	>480	6
Nitrobenzene	98-95-3	Oil of Mirbane, Nitrobenzol,	Imm	0	NT	>480	6	NT	>480	6
Octave	n/a		NT		NT	>480	6	NT	NT	
Oleum (30% by weight)	8014-95-7		NT		NT	NT		NT	143	
Paraffin	8002-74-2		NT		NT	25	1	NT	>480	4
Perchloroethylene	127-18-4	Ankilostin, Tetropil, Tetrachloroethylene, Tetracap, Didkene	NT		NT	NT		NT	>480	6
Petrol (unleaded)	8006-61-9	Gasoline, Benzin,	NT		NT	2	0	NT	>480	6
Phenol (liquid @ 45°c)	108-95-2	Phenylic Acid, Pehnic Acid, Phenyl Hydroxide, Oxybenzene,	NT		NT	>480	6	NT	>480	6
Phenol in Water Solution (24g/l)	n/a		NT		NT	NT		NT	>480	6
Phenol/Benzyl Alcohol 25/5	n/a		NT		NT	>480	6	NT	>480	6
Phosphoric Acid o 85+%	7664-38-2	Orthophosphoric Acid,	NT		NT	>480	6	NT	>480	6
Phosphoric Pentachloride	10026-13-8		NT		NT	>480	6	NT	>480	6
Phosphorous Oxychloride	10025-87-3		NT		NT	9	0	NT	NT	
Phthalic Anhydride (135°c)	85-44-9		NT		NT	>480	6	NT	NT	
Pivalic Acid	3377-92-2		NT		NT	>480	6	NT	>480	6
P-Nitrochlorobenzene 88ºC	100-00-5		NT		NT	NT		NT	>480	6
Polyethylene Glycol 200	n/a		NT		NT	>480	6	NT	>480	6
Pro-set 125M Resin (960217)	n/a		NT		>480	NT	6	>480	NT	6
Pro-set 226pf Hardener (960228)	n/a		NT		>480	NT	6	>480	NT	6
Propionaldehyde	123-38-6		NT		NT	NT		NT	>480	6
Propionic Acid	79-09-4		NT		NT	NT		NT	>480	6
Propionitrile	107-12-0		NT		NT	70	3	NT	>480	6
Propylene Oxide 99%	75-56-9		NT		NT	NT		NT	30	2
Reglone	85-00-7		NT		NT	>480	6	NT	>480	6
Ripcord	52315-07-8		NT		NT	>480	6	NT	>480	6
Round-Up	38641-94-0		NT		NT	>480	6	NT	>480	6
Sodium Bisulphate 40%	7681-38-1		NT		NT	>480	6	NT	NT	
Sodium Cyanide (satd soln)	143-33-9		NT		NT	>480	6	NT	>480	6
Sodium Fluoride (satd)	7681-49-4		NT		NT	>480	6	NT	>480	6
Sodium Hydroxide 50%	1310-73-2	Soda Lye, Caustic Soda,	>480	6	NT	>480	6	NT	>480	6
Sodium Hypochlorite	7681-52-9	Bleach	NT		NT	>480	6	NT	>480	6
Sodium Methylate 30%	124-41-4		NT		NT	>480	6	NT	NT	
Sodium Monochloride	n/a		NT		NT	>480	6	NT	>480	6
Sodium Silicofluoride (sat'd)	16893-85-9		NT		NT	>480	6	NT	>480	6
Styrene	100-42-5	Cinnamol, Styrol, Vinylbenzene, Ethylbenzene, Styrolene,	NT		NT	2	0	NT	>480	6
Sulphuric Acid 95+%	7664-93-9		NT		NT	NT		NT	>480	6
Sulphuric Acid 98+%	7664-93-9	Oil of Vitriol, Oleum (98%), Nordhausen Acid (98%), BOV	>480	6	NT	>480	6	NT	>480	6
SUVA HCFC-123 (1,1 Dichloro-2,2,2 Trifluoroethane)	n/a		NT		NT	251	5	NT	380	5
TEGO 51	n/a		NT		NT	>480	6	NT	>480	6
Tetrabutyl Methyl Ether	1634-04-4		NT		NT	NT		NT	73	3
Tetracloroethylene	79-01-6		Imm	0	NT	NT		NT	>480	6
Tetrahydrofuran (THF)	109-99-9		Imm	0	NT	Imm	0	NT	19	2
Tetramethyl Ammonium Hydroxide (Sat'd)	75-59-2		NT		NT	NT		NT	>480	6
Thionyl Chloride	9/7/7719		NT		NT	Imm	0	NT	2	0
Thiourea Dioxide (sat'd)	1758-73-2		NT		NT	>480	6	NT	>480	6
Titanium Chloride	10049-06-6		NT		NT	2	0	NT	NT	
Toluene	108-88-3	Toluol, Methacide, Phenylmethane, Methyl Benzene,	Imm	0	NT	3	0	NT	>480	6
Toluene 2,4 Diisocyanate	584-84-9	TDI, Nacconate 100	NT		NT	>480	6	NT	>480	6
Toluidine o	95-53-4		NT		NT	>480	6	NT	>480	6
Transformer Oil	n/a		NT		NT	60	3	NT	>480	6
Trichloroacetic Acid 98%	76-03-9		NT		NT	>480	6	NT	>480	6
Trichloroethylene	79-01-6	Algylen, Westrosol, Trimar, Trilene, Triline, Trielene,	NT		NT	2	0	NT	7	0
Triethylamine	121-44-8		NT		NT	Imm	0	NT	5	0
Vinyl Acrylate	n/a		NT		NT	NT		NT	>480	6
Vinyl Benzyl Chloride	n/a		NT		NT	NT		NT	>480	6
Xylene m	1330-20-7	Xylol, Diethyl Benzene,	NT		NT	2	0	NT	>480	6
Zinc Bromide (sat'd soln)	7699-45-8		NT		NT	>480	6	NT	NT	

Key	
	NT = Not Tested
	n/a = Not available or not applicable
	Imm = immediate

EN Class	Normalised Breakthrough Time in minutes
0	Immediate (no class)
1	**≥ 10**
2	**≥ 30**
3	**≥ 60**
4	**≥ 120**
5	**≥ 240**
6	**≥ 480**

CHEMICAL WARFARE AGENTS - M4000	
Microchem 4000 fabric has been permeation tested at TNO-PML against the following chemical warfare agents.	
Lewisite (L)	>6:00 <24:00
Mustard Agent (HD)	>24:00
Sarin (GB)	>24:00
VX	>24:00

Exclusive Australian & New Zealand agents

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All testing and breakthrough times quoted relate to laboratory tests on fabrics only. Seams and closures may have lower breakthrough times - particularly when worn or damaged.
The final determination of suitability is the users' responsibility.
For more information or guidance on specific chemicals please contact Microgard Ltd on +44 (0) 1482 625444

MICROGARD® / MICROCHEM® garments are designed and manufactured under an ISO 9001 quality control approved system