

## ACRONYMS KEY

—	Not reported
MDPR	Minimum detectable permeation rate
BDT	Breakthrough detection time (first appearance after the MDPR)
BT 0.1	Normalised breakthrough detection time at 0.1 µg/cm <sup>2</sup> /min
BT 1.0	Normalised breakthrough detection time at 1.0 µg/cm <sup>2</sup> /min
EN Class	Based on the mean BT (or lowest if the mean is not available) at 1.0µg/cm <sup>2</sup> /min according to ISO 6529
CP	Cumulative permeation after 480 min. If no permeation detected, then reported as <[MDPR x 480]
CPT	Time to cumulative permeation of 150 µg/cm <sup>2</sup>
PR	Steady state permeation rate. If not reached then maximum permeation rate for the duration of the test is reported. If no permeation is detected then reported as <MDPR

EN Class	Normalised Breakthrough Time in minutes
0	Immediate (no class)
1	≥ 10
2	≥ 30
3	≥ 60
4	≥ 120
5	≥ 240
6	≥ 480 (or >540)



Chemical Testing Results

MICROCHEM® 5000

CAS Number	Chemical Name	MDPR µg/cm <sup>2</sup> /min	BDT	BT 0.1µg/cm <sup>2</sup> /min	BT 1.0µg/cm <sup>2</sup> /min	EN Class EN 14325	CP µg/cm <sup>2</sup>	CPT µg/cm <sup>2</sup> /min	CP Class	PR µg/cm <sup>2</sup> /min
67-64-1	Acetone	0.02	>480	>480	>480	6	-	>480	6	<0.02
75-05-8	Acetonitrile	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
7664-41-7	Ammonia Gas (>99.98% w/w, 1 atmos.)	0.03	38	41	>480	6	62.7	>480	6	0.03
7664-41-7	Ammonia Liquid (99%, liquified, -34 °C)	0.01	>480	>480	>480	6	-	>480	6	<0.01
62-53-3	Aniline	0.02	>480	>480	>480	6	<9.60	>480	6	<0.02
7726-95-6	Bromine	0.05	10	11	12	1	ND	ND	ND	High
106-99-0	Butadiene 1,3- (>99% w/w)	0.02	>480	>480	>480	6	<9.6	>480	6	<0.02
75-15-0	Carbon Disulphide	0.1	ND*	277	>480	6	15	>480	6	0.1
7782-50-5	Chlorine Gas (>99.8% w/w, 1 atmos.)	0.001	>480	>480	>480	6	<0.48	>480	6	<0.001
67-66-3	Chloroform	0.07	45	53	101	3	NR	184	4	2.26
74-87-3	Chloromethane (99.9% w/w)	0.05	>480	>480	>480	6	<24	>480	6	<0.05
108-91-8	Cyclohexylamine (>99.5% w/w)	0.099	>480	>480	>480	6	<47.5	>480	6	<0.099
75-09-2	Dichloromethane (99.97% w/w)	0.04	19	23	59	2	NR	114	3	6.99
60-29-7	Diethyl Ether	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
109-89-7	Diethylamine (99.9% w/w)	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
598-56-1	Dimethylethylamine	0.02	>480	>480	>480	6	<9.60	>480	6	<0.02
68-12-2	Dimethylformamide, N,N-	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
141-78-6	Ethyl Acetate (99.98% w/w)	0.1	ND*	>480	>480	6	<2.5	>480	6	<0.1
75-21-8	Ethylene Oxide (gas at ca. 1 atmos.)	0.04	41	55	195	4	NR	273	5	1.04
107-15-3	Ethylendiamine	0.06	>480	>480	>480	6	<28.8	>480	6	<0.06
142-82-5	Heptane, n- (99.8% w/w)	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
110-54-3	Hexane, n-	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
7664-39-3	Hydrofluoric Acid (71-75% w/w)	0.03	>480	>480	>480	6	<14.4	>480	6	<0.03
7647-01-0	Hydrogen Chloride Gas (>99% w/w, 1 atmos.)	0.03	ND*	>480	>480	6	<3.5	>480	6	<0.03
7664-39-3	Hydrogen Fluoride (99%, liquified, 17 °C)	0.01	120	>480	>480	6	-	>480	6	0.05
7783-06-4	Hydrogen Sulphide (>99% w/w)	0.05	>480	>480	>480	6	NR	>480	6	<0.05
67-56-1	Methanol (>99.5% w/w)	0.03	>480	>480	>480	6	<14.4	>480	6	<0.03
10102-43-9	Nitric Oxide	0.05	>480	>480	>480	6	<24	>480	6	<0.05
98-95-3	Nitrobenzene (99.99% w/w)	0.1	ND*	>480	>480	6	<2.5	>480	6	<0.1
10025-87-3	Phosphorus Oxchloride	0.005	>480	>480	>480	6	<2.4	>480	6	<0.005
106-94-5	Propyl Bromide, n-	0.05	>480	>480	>480	6	<24.0	>480	6	<0.05
107-10-8	Propylamine, n-	0.02	145	163	>480	6	114	390	5	0.86
75-56-9	Propylene Oxide (99%)	0.08	90	90	114	3	NR	171	4	4.38
1310-73-2	Sodium Hydroxide (30%)	0.05	ND*	>480	>480	6	<6	>480	6	<0.05
1310-73-2	Sodium Hydroxide (sat., 50% w/w)	0.05	ND*	>480	>480	6	<6	>480	6	<0.05
7664-93-9	Sulphuric Acid (95-96% w/w)	0.02	>480	>480	>480	6	<9.6	>480	6	<0.02
127-18-4	Tetrachloroethylene (99.9% w/w)	0.05	>480	>480	>480	6	<24	>480	6	<0.05
109-99-9	Tetrahydrofuran	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
110-18-9	Tetramethylethylenediamine, N,N,N',N'-	0.07	>480	>480	>480	6	<33.6	>480	6	<0.07
7719-09-07	Thionyl Chloride	0.02	15	15	17	1	NR	27	1	High
108-88-3	Toluene	0.01	>480	>480	>480	6	<4.8	>480	6	<0.01
79-01-6	Trichloroethylene	0.06	>480	>480	>480	6	<28.8	>480	6	<0.06
121-44-8	Triethylamine	0.01	>480	>480	>480	6	<4.80	<9.60	6	<0.01
1493-13-6	Trifluoromethanesulphonic Acid	0.06	265	277	>480	6	66.5	>480	6	0.43

**Important:** Breakthrough time alone is not sufficient to determine how long a garment may be worn once the garment has been contaminated. Safe wear time may be longer or shorter depending on numerous other factors, including the toxicity, exposure conditions and permeation behaviour of the substance.

## Safety Note

All chemical tests and breakthrough times given relate to laboratory tests on fabrics only. Seams and closures may have lower breakthrough times, particularly when worn or damaged. It is the user's responsibility to select an appropriate garment, gloves, boots and other equipment for the particular use. The user shall be responsible for determining how long the garment can be worn for the particular use and whether it can be suitably cleaned for re-use. Microgard Limited does not give any warranties or make any representations about its garments other than those contained in the official literature supplied by Microgard Limited with each garment.



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