

CBRN OVERBOOTS



RESPIREX™

CBRN OVERBOOTS



A CBRN protective anti-static overboot with an ambidextrous quick-don design. Tested against a broad range of hazardous chemicals and chemical warfare agents, the boot design allows it to be fastened single-handedly in less than five seconds while wearing CBRN gloves.

Features:

- Ingenious rear entry design ensures the boot is quick and easy to fit and remove
- Single ambidextrous design allows the boot to be worn on either the right or left foot to speed donning & doffing
- Manufactured from chemically resistant Hazmax™ FPA compound and certified to EN 13832-3:2006 (Footwear protecting against chemicals)
- Greater than 24 hours permeation resistance against HD Mustard, VX & GD chemical warfare agents
- Conforms to EN 943-1 (Chemical protective clothing)
- Meets the requirements of NFPA 991 (Chemical vapour protection)
- Meets EN ISO 20347:2012
- Quick & easy to decontaminate
- Comfortable, lightweight, flexible design
- Specifically designed to fit and completely cover standard UK military issue combat boots
- Can be rolled and stored in a kit-bag
- Seamless construction
- Kick off lug
- CE marked with date and year of manufacture
- REACH Compliant
- Slip resistant, non-clogging sole design
- Fuel and oil resistant
- Available in Olive Green or Black



CBRN OVERBOOTS



Care:

- Machine washable at up to 60°C
- Shelf life of over 10 years

Options:

- Electro-Static Discharge (ESD) version to EN 61340-5, suitable for electro-protective areas

Certification:

- EN 13832-3:2006 AKOPQRT
Chemical Protective Footwear
- EN ISO 20347:2012 A FO SRA
Safety Footwear

Sizing:

	Part No. (Olive Green)	Part No. (Black)	US	EN	UK
X-Small	B01391/OG	B01391/BLK	3 - 4½	34 - 35	2 - 3½
Small	B01392/OG	B01392/BLK	5 - 6½	37 - 38	4 - 5½
Medium	B01393/OG	B01393/BLK	7 - 8½	39 - 41	6 - 7½
Large	B01394/OG	B01394/BLK	9 - 10½	42 - 43	8 - 9
X-Large	B01395/OG	B01395/BLK	11 - 12	44 - 45	10 - 11
XX-Large	B01396/OG	B01396/BLK	13 - 14	46 - 47	12 - 13
XXX-Large	B01397/OG	B01397/BLK	15 - 16	48 - 50	14 - 15

NATO Stock Numbers (Black):

XS	8430-99-472-1024	L	8430-99-969-4195	XXXL	8430-99752-8664
S	8430-99-176-1246	XL	8430-99-894-9283		
M	8430-99-752-8650	XXL	8430-99-444-9493		

CHEMICAL PERMEATION DATA CBRN OVERBOOT

There are three mechanisms that you need to consider when looking at the use of chemicals with personal protective equipment:

PENETRATION:

Chemical penetration is ingress through a material on the non-molecular level - i.e. through holes, cracks, pores, seams etc. This is not an issue with moulded footwear until it starts to age (where on some compounds chemical or UV degradation can cause brittleness and cracking), but can be a big problem with leather or synthetic fabric footwear.

CHEMICAL PERMEATION:

Chemical Permeation is the process by which a chemical passes through a material at the molecular level. The rate of permeation will be determined by the material, its thickness and the temperature.

Actual Breakthrough Time - is the time that the chemical is first detected on the inner surface of the material, this will depend to an extent on the sensitivity of the detection equipment and method of analysis.

Normalised Breakthrough Time - is the time taken to reach a specific permeation rate (for European standards this is defined as $0.1 \mu\text{g}[\text{min} \cdot \text{cm}^2]$, for American standards it is $1 \mu\text{g}[\text{min} \cdot \text{cm}^2]$). This is the measure used in permeation tables (such as the one on the following pages) as it will be consistent between testing laboratories.

DEGRADATION:

Degradation is the physical change to the material caused by the chemical, which can include swelling, stiffening, wrinkling, changes in colour, and other physical deterioration. The slower the degradation occurs in the presence of a chemical, the more protective the material is for that specific chemical.

CHEMICAL	CAS NO.	METHOD	BREAK THROUGH
Acetic acid (Glacial)	64-19-7	EN 16523	> 12 Hours
Acetone	67-64-1	EN374-3	> 2 Hours
Acetone Cyanohydrin	75-86-5	EN374-3	> 8 Hours
Acetonitrile	75-05-08	EN374-3	> 6 Hours
Acrylic Acid	79-10-7	EN374-3	> 8 Hours
Acrylonitrile	107-13-1	EN374-3	> 2 Hours
Ammonia 33%	1336-21-6	EN 16523	> 32 Hours
Ammonia Gas	7664-41-7	EN374-3	> 8 Hours
Ammonium Hydroxide Solution 5% free NH ₃	1336-21-6	EN 16523	> 32 Hours
Ammonium Pentadecafluorooctanoate (30% in water)	3825-26-1	EN374-3	> 8 Hours
Aniline	62-53-3	EN374-3	> 8 Hours
Anti-knock(Tetraethyl lead 60% Dibromoethane 30%/Dichloroethane 10% TEL-CB)	78-00-2 / 106-03-4 / 107-06-2	EN374-3	> 8 Hours
Aqueous Phenol 85%	108-95-2	EN374-3	> 8 Hours
Arsenic Acid	7778-39-4	EN374-3	> 8 Hours
Benzene	71-43-2	EN374-3	> 4 Hours
Benzyl Chloride	100-44-7	EN374-3	> 8 Hours
Bromine	7726-95-6	EN374-3	> 7 Hours
Buta-1,3diene Gas	106-99-0	EN374-3	> 3 Hours
Butyl Acetate	123-86-4	EN374-3	> 6 Hours
Cable oil		EN374-3	> 8 Hours
Carbazole	86-74-8	EN374-3	> 8 Hours
Carbon Disulphide	75-15-0	EN374-3	> 1 Hour
Chlorine Gas	7782-50-5	EN374-3	> 3 Hours
Chloroacetic Acid 85%	79-11-8	EN 16523	> 32 Hours
Chromic Acid	1333-82-0	EN374-3	> 8 Hours
Cyclohexylamine	108-91-8	EN374-3	> 8 Hours
Dichloromethane	75-09-02	EN374-3	> 1 Hour
Diethylamine	109-89-7	EN374-3	> 2 Hours
Diethylene Glycol dimethylether	111-46-6	EN374-3	> 8 Hours
Dimethyl Formamide	68-12-2	EN374-3	> 8 Hours
Dimethylformamide	68-12-2	EN374-3	> 3 Hours
Epichlorohydrin	106-89-8	EN374-3	> 7 Hours
Ethanol (Ethyl Alcohol)	64-17-5	EN374-3	> 8 Hours
Ethyl Acetate	141-78-6	EN374-3	> 4 Hours
Ethylene Glycol	107-21-1	EN374-3	> 8 Hours
Ethylene Dichloride	107-06-2	EN374-3	> 8 Hours
Ethylene Oxide	75-21-8	EN374-3	> 2 Hours

CHEMICAL	CAS NO.	METHOD	BREAK THROUGH
Ethylenediamine tetra-acetic acid tetrasodium salt (EDTA) 5%	64-02-8	EN374-3	> 8 Hours
Formaldehyde 37%	79-11-8	EN374-3	> 8 Hours
Formic Acid 65%	64-18-6	EN374-3	> 8 Hours
Heptane	142-82-5	EN374-3	> 8 Hours
Hexane	110-54-3	EN374-3	> 7 Hours
Hydrazine	302-01-2	EN374-3	> 8 Hours
Hydrazine 5%	7803-57-8	EN374-3	> 8 Hours
Hydrochloric Acid 37%	7647-01-0	EN 16523	> 32 Hours
Hydrofluoric Acid 48%	7664-39-3	EN374-3	> 66 Hours
Hydrofluoric Acid 73%	7664-39-3	EN374-3	> 8 Hours
Hydrogen Chloride Gas	7647-01-0	EN374-3	> 8 Hours
Hydrogen Fluoride gas anhydrous	7664-39-3	EN374-3	> 1 Hour
Hydrogen Peroxide (10 volume (3%) solution)	7722-84-1	EN374-3	> 8 Hours
Hydrogen Peroxide 50%	7722-84-1	EN374-3	> 8 Hours
Iso-butane	75-28-5	EN374-3	> 8 Hours
Iso-butane followed by Hydrofluoric acid 71-75%	75-28-5 + 7664-39-3	EN374-3	> 8 Hours
Iso-propanol (IPA)	67-63-0	EN 16523	> 32 Hours
m-Cresol	108-39-4	EN374-3	> 8 Hours
Methanol	67-56-1	EN374-3	> 8 Hours
Methyl Ethyl Ketone (M.E.K) 2-Butanone	78-93-3	EN374-3	> 2 Hours
Methyl Iodide 99%	74-88-4	EN374-3	> 1.5 Hours
Methyl Methacrylate	80-62-6	EN 369	> 3 Hours
methyl-1,2-pyrrolidone	872-50-4	EN369	> 8 Hours
Methylene Chloride Gas	74-87-3	EN374-3	> 1 Hour
Monochloroacetic acid	79-11-8	EN374-3	> 8 Hours
Naphalene	91-20-3	EN374-3	> 8 Hours
N,N-Dimethylaniline	121-69-7	EN374-3	> 8 Hours
N,N-dimethyl acetamide	127-19-5	EN374-3	> 8 Hours
Nitric Acid 50%	7697-37-2	EN 16523	> 32 Hours
Nitric Acid 70% conc	7697-37-2	EN 16523	> 32 Hours
Nitric Acid Etchant 80/20	7697-37-2	EN374-3	> 8 Hours
Nitro Benzene	98-95-3	EN374-3	> 3 Hours
Oleum 40% SO ₂	8014-95-7	EN374-3	> 8 Hours
Oxalic Acid saturated solution	6153-56-6	EN374-3	> 8 Hours
Phenol 50% in Methanol	108-95-2/ 67-56-1	EN374-3	> 8 Hours
Phosphoric acid 25%	7664-38-2	EN 16523	> 32 Hours

CHEMICAL	CAS NO.	METHOD	BREAK THROUGH
Phosphoric acid 75%	7664-38-2	EN 16523	> 32 Hours
Propylene 1,2 oxide	75-56-9	EN374-3	> 1 Hours
Red Fuming Nitric acid	7697-37-2	EN374-3	> 4 Hours
Sodium Cyanide 30wt%	143-33-9	EN374-3	> 8 Hours
Sodium Hydroxide 40%	1310-73-2	EN374-3	> 8 Hours
Sodium Hypochlorite 16%	7681-52-9	EN374-3	> 8 Hours
Styrene	100-42-5	EN374-3	> 8 Hours
Sulphuric Acid 50%	7664-93-9	EN 16523	> 32 Hours
Sulphuric Acid 96%	7664-93-9	EN 16523	> 32 Hours
Tetrachloroethylene	127-18-4	EN374-3	> 3 Hours
Tetraethyl Lead (Octel Anti Knock)	78-00-2	EN374-3	> 8 Hours
Tetrahydrofuran	109-99-9	EN374-3	> 3 Hours
Toluene	108-88-3	EN374-3	> 4 Hours
Toluene 2,4 Diisocyanate	584-84-9	EN374-3	> 8 Hours
Trichloroethane	71-55-6	EN374-3	> 6 Hours
Trichloroethylene 1,1,2	79-01-6	EN374-3	> 3 Hours
Triethanol-amine	102-71-6	EN374-3	> 8 Hours
Triethylene Glycol	112-27-6	EN374-3	> 8 Hours
Trigonox K-80 Cumyl hydroperoxide 80% / 20% Cumene	80-15-9/ 98-82-8	EN 369	> 8 Hours
Xylene	1330-20-7	EN374-3	> 4 Hours

Chemicals in **bold** are the 15 standard test chemicals defined in EN943-2:2002

WARFARE AGENT	CAS NO.	METHOD	BREAK-THROUGH
Cyanogen Chloride	506-77-4	NFPA	No permeation detected
Lewisite	541-25-3	NFPA	No permeation detected
Sarin Gas	107-44-8	NFPA	No permeation detected
HD (Mustard Gas)	505-60-2	Def. Std.	> 24 Hours
GD (Soman)	96-64-0	Finabel 0.7.C.	> 24 Hours
VX	50782-69-9	Finabel 0.7.C.	> 48 Hours



RESPIREX™

Living + Breathing Personal Protection

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For more details on our range of personal protective clothing call us on
+44 (0)1737 77 86 00 or visit our website:

www.respirex.com