

# HAZMAX™ BOOTS - CHEMICAL PERMEATION

CHEMICAL	CAS NO.	LETTER	METHOD	BREAK-THROUGH
Acetic acid (Glacial)	64-19-7	N	EN 16523	> 12 Hours
<b>Acetone</b>	67-64-1	B	EN374-3	> 2 Hours
Acetone Cyanohydrin	75-86-5		EN374-3	> 8 Hours
<b>Acetonitrile</b>	75-05-08	C	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	O	EN 16523	> 32 Hours
<b>Ammonia Gas</b>	7664-41-7		EN374-3	> 8 Hours
Ammonium Hydroxide Solution 5% free NH <sub>3</sub>	1336-21-6		EN 16523	> 32 Hours
Ammonium Pentadecafluoro-octanoate (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
<b>Carbon Disulphide</b>	75-15-0	E	EN374-3	> 1 Hour
<b>Chlorine Gas</b>	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
<b>Dichloromethane</b>	75-09-02	D	EN374-3	> 1 Hour
<b>Diethylamine</b>	109-89-7	G	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
<b>Ethyl Acetate</b>	141-78-6	I	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
Ethylenediamine tetra-acetic acid tetrasodium salt (EDTA) 5%	64-02-8		EN374-3	> 8 Hours
Formaldehyde 37%	79-11-8	T	EN374-3	> 8 Hours
Formic Acid 65%	64-18-6		EN374-3	> 8 Hours
<b>Heptane</b>	142-82-5	J	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	S	EN374-3	> 66 Hours
Hydrofluoric Acid 73%	7664-39-3		EN374-3	> 8 Hours
<b>Hydrogen Chloride Gas</b>	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	P	EN374-3	> 8 Hours

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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
<b>Methanol</b>	67-56-1	A	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-dimetyl acetamide	127-19-5		EN374-3	> 8 Hours
Nitric Acid 50%	7697-37-2	M	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 <sub>3</sub>	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
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
<b>Sodium Hydroxide 40%</b>	1310-73-2	K	EN374-3	> 8 Hours
Sodium Hypochlorite 16%	7681-52-9	R	EN374-3	> 8 Hours
Styrene	100-42-5		EN374-3	> 8 Hours
<b>Sulphuric Acid 96%</b>	7664-93-9	L	EN374-3	> 8 Hours
Tetrachloroethylene	127-18-4		EN374-3	> 3 Hours
Tetraethyl Lead (Octel Anti Knock)	78-00-2		EN374-3	> 8 Hours
<b>Tetrahydrofuran</b>	109-99-9	H	EN374-3	> 3 Hours
<b>Toluene</b>	108-88-3	F	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	BREAKTHROUGH TIME
Cyanogen Chloride	506-77-4	NFPA	No permeation detected
Lewisite	541-25-3	NFPA	No permeation detected
Mustard Gas	505-60-2	NFPA	No permeation detected
Saren Gas	107-44-8	NFPA	No permeation detected
VX	50782-69-9	Finabel 0.7.C.	> 48 Hours
GD (Soman)	96-64-0	Finabel 0.7.C.	> 24 Hours