

GLS 300C SUIT

CHEMPROTEX™ 300



RESPIREX™

Description

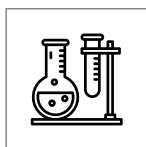
The GLS 300C suit in Chemprotex™ 300 is a single use **Air-fed Type 1c** gas-tight chemical protection suit for use with breathable air supplied from an external positive pressure compressed air source.

The suit combines the comfort and flexibility of a lightweight high-performance chemical barrier fabric with a gas-tight construction. It incorporates a choice of permanently attached antistatic chemical gloves, sock feet and a lightweight gas-tight zip.

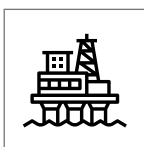
Applications



Industrial Fire
Brigades



Chemical
Industry



Petro-
Chemical

Air Supply

The air flowing into the garment must conform to the requirements set in EN 12021: 2014 for "Breathing Air".



Certification



TYPE 1c | EN 943-1:2015+A1:2019
Gas-Tight Chemical Protective Suits



TYPE 3 | EN 14605:2005+A1:2009
Liquid-Tight Chemical Protective Clothing



TYPE 4 | EN 14605:2005+A1:2009
Spray-Tight Chemical Protective Clothing



TYPE 5 | EN 13982-1:2004+A1:2010
Particulate Protective Clothing



TYPE 6 | EN 13034:2005+A1:2009
Limited Spray-Tight Chemical Protective Clothing

ATEX Zones



Tested in accordance with EN IEC 60079-32-2:2015 and CEN/CLC/TR 16832:2015 for use in the following ATEX environments:

Dust Ex atmospheres: **ZONES 20, 21 & 22**

Gas Ex atmospheres: **ZONES 1 & 2**

Product Documentation



The CE Certificate, Declaration of Conformity and user instructions can all be downloaded from the product page on the Respirex website, links are in the downloads tab.

There are also videos on donning procedure and on how to use the Permasure app.

Key Features

Semi-rigid **laminated chemically resistant visor** giving clear undistorted vision

Air distribution system in the hood with an air permeable collar to provide **cooling air through the suit**, making the wearer more comfortable and better able to focus on tasks

Lightweight **gas-tight zip** fitted across the chest covered by **double external storm flaps** with hook and loop fastener

External air control valve and hose (supplied separately) are easily detached during doffing procedure for decontamination and reuse.

Integral **sock feet** with outer splash guard legs

Four **exhalation valves** on the back of the suit ensure that the suit maintains a comfortable working pressure

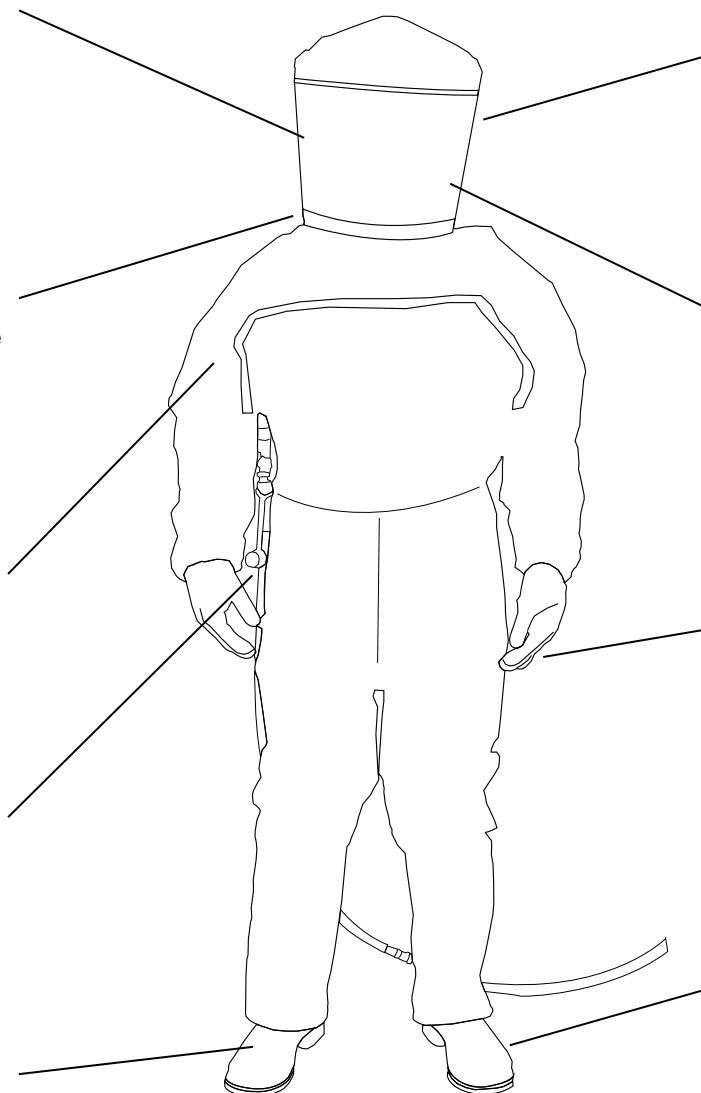
The hood design provides high protection without the need for a tight-fitting face piece, which means:

- Wearers feel less constricted
- Can be used by wearers with facial hair
- Face-fit testing not required

Choice of **Kemblok™ chemical glove** welded to the sleeve, or attached **antistatic KCL Butoject butyl gloves** (see below).

Five year shelf-life with KCL Butoject gloves, **Ten year shelf-life** with Kemblok Gloves

Must be **worn with ESD footwear** (e.g. Hazmax™ ESD boots) to ensure a conductive path to ground when used in explosive atmospheres



Glove Options



Kemblok™ Glove

A permanently attached Kemblok™ chemical barrier glove with conductive strip on the palm and an elasticated outer sleeve, designed to be used with outer antistatic gloves providing mechanical protection



Attached Butyl Glove

A permanently attached antistatic KCL Butoject butyl glove

Accessories



Air Control Valve & Hose

Adjustable air control valve with integral warning whistle. Worn externally the valve connects to an external air supply and the breathing air input of the GLS 300C suit. The valve has been designed for ease of decontamination and to prevent the build up of electrostatic charge. The warning whistle operates at pressures below 3.5 bar.

Working pressure: 3.5-4.5 bar

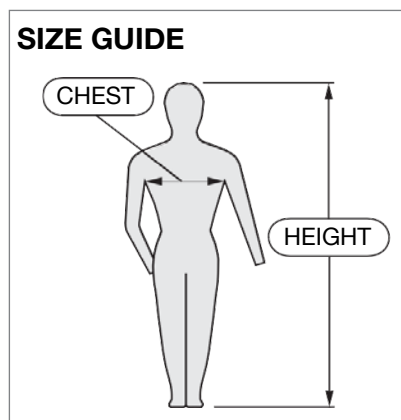


HAZMAX™ ESD Boots

A chemically-protective electrostatically dissipative safety boot with an integral steel toe cap and mid sole, vulcanized rubber sole for superior slip resistance and kick off lug for hands free removal.

Sizing Chart

Size	Chest (cm)	Height (cm)
Small	88-96	164-170
Medium	96-104	170-176
Large	104-112	176-182
X-Large	112-124	182-188
XX-Large	124-136	188-194



Specifications

GLS 300C Suit

Pack Size (max)	8 x 58 x 36 cm
Pack Weight (max)	3.8 kg
Carton Qty	3
Outer Carton Size	84 x 62 x 40 cm
Outer Carton Weight (max)	14.2 kg
Commodity Code	39262000

Specifications are based on an XL sized suit without optional accessories and are for guidance only

Material Properties

Performance Requirement	Test Method	Property value of Chemprotex™ 300	Class
Abrasion Resistance	EN ISO 12947-2:2016	> 2,000 cycles	6
Flex Cracking Resistance	EN ISO 7854:1997 Method B	> 500 cycles	1
Puncture Resistance	EN 863:1995	> 10 Newtons	2
Trapezoidal Tear Resistance	EN ISO 9073-4:1997	> 60 Newtons	4
Tensile strength	EN ISO 13934-1:1999	> 100 Newtons	3
Resistance to ignition	EN 13274-4:2001 Method 3 (single burner test)	No part ignited or continued to burn on removal from the flame	Pass
Resistance to blocking	EN 25978:1993	No blocking	-
Seam Strength	EN ISO 13935-2:1999	> 300 Newtons	5
Surface resistance	EN 1149-1:2006	Face < 3.6 x 10 ⁸ Ω, Reverse < 2.4 x 10 ⁷ Ω	-

Resistance to Penetration by Infective Agents

The material has passed the requirements of EN14126:2003 for protective clothing against infective agents. It is therefore suitable to provide protection against blood, blood-borne pathogens, body fluids, biologically contaminated aerosols and both wet and dry microbial penetration.

Requirement	Test Method	Level of Performance	EN14126:2003 Class
Resistance to wet microbial penetration	ISO 22610:2006	> 75 min	6
Resistance to penetration by blood and body fluids using synthetic blood	ISO 16603:2004	Pass	N/A
Resistance to penetration by blood-borne pathogens using bacteriophage Phi-X174	ISO 16604:2004	20 kPa	6
Resistance to penetration by biologically contaminated aerosols	ISO/DIS 22611:2003	Log > 5	3
Resistance to dry microbial penetration	ISO 22612:2005	<1 Log cfu	3

Chemical Warfare Agent Protection

The Chemprotex™ 300 material has been tested for resistance to permeation by chemical warfare agents in accordance with FINABEL O.7.C methods at the respected TNO laboratories. Both the material and seams were found to offer an extremely high level of protection against the following agents:

Agent	Breakthrough time (hours)	Temperature (°C)
Mustard agent (HD)	>48	37
Sarin (GB)	>48	37
Soman (GD)	>48	37
VX	>48	37

Whole Suit Performance

Tested In Accordance With	Performance Requirement	Level Of Performance	Class
ISO 17491-1:2012 Method 1	Gas-Tight Pressure Test	Max pressure change <200 pascals (starting at 1,000) over 4 mins	Pass
ISO 17491-12012 Method 2 (rigorous procedure)	Gas-Tight Pressure Test	Max pressure change <300 pascals (starting at 1,650 pascals) over 6 mins	Pass

Tested In Accordance With	Performance Requirement	Class	Compressed air-based breathing air system with adjustable control valve:	
EN ISO 17491-3:2008	Type 3 Liquid jet test	Pass	Working pressure:	3.5 - 4.5 bar (the warning whistle is activated at pressures below 3.5 bar)
EN ISO 17491-4:2008 Method B	Type 4 High level liquid spray test	Pass	Minimum air volume:	170l / min at 3.5 bar - control valve closed
EN ISO 13982-2:2004	Type 5 Inward leakage test	Pass	Maximum air volume:	300l / min at 4.5 bar - control valve fully open
EN ISO 17491-4:2008 Method A	Type 6 Low level liquid spray test	Pass	Noise level:	65dB min (at 170l / min) 70dB max (at 300l / min)

Chemical Permeation & Permasure®



The GLS 300C suit is compatible with the **Permasure** toxicity modelling app, available for Android and IOS devices. Permasure calculates safe working times for a database of over 4,000 common industrial and toxic chemicals, basing its calculations of the actual working conditions at the time. For full details visit www.respirex.com/permasure

All chemical permeation tests are carried out under laboratory conditions by independent accredited laboratories in accordance with EN 374-3 unless otherwise stated.

Chemical Name	State	CAS Number	Actual (min.)	ASTM (min.)	EN374-3 (min.)	EN Class	SSPR $\mu\text{g}/(\text{min}.\text{cm}^2)$	MDPR $\mu\text{g}/(\text{min}.\text{cm}^2)$	Observation
acetaldehyde	L	75-07-0	>480	>480	>480	6	<0.05	0.05	No degradation
acetic acid (30%)	L	64-19-7	>480	>480	>480	6	<0.001	0.001	No degradation
acetic acid (glacial)	L	64-19-7	>480	>480	>480	6	<0.001	0.001	No degradation
acetic anhydride	L	108-24-7	>480	>480	>480	6	<0.001	0.001	No degradation
acetone	L	67-64-1	>480	>480	>480	6	<0.02	0.02	No degradation
acetonitrile	L	75-05-8	>480	>480	>480	6	<0.05	0.05	No degradation
acetophenone	L	98-86-2	>480	>480	>480	6	<0.05	0.05	No degradation
acrylamide (50%)	L	79-06-1	>480	>480	>480	6	<0.10	0.10	No degradation
acrylic acid	L	79-10-7	>480	>480	>480	6	<0.005	0.005	Discolouration
acrylonitrile	L	107-13-1	>480	>480	>480	6	<0.05	0.05	No degradation
allyl alcohol	L	107-18-6	>480	>480	>480	6	<0.05	0.05	No degradation
ammonia	G	7664-41-7	32	49	>480	6	0.17	0.005	No degradation
ammonium hydroxide (35% NH_3 in water)	L	1336-21-6	>480	>480	>480	6	<0.001	0.001	No degradation
amyl acetate-n	L	628-63-7	>480	>480	>480	6	<0.02	0.02	No degradation
aniline	L	62-53-3	>480	>480	>480	6	<0.05	0.05	No degradation
aviation fuel	L	-	>480	>480	>480	6	<0.05	0.05	No degradation
benzene	L	71-43-2	28	35	58	2	3.0	0.05	No degradation
benzonitrile	L	100-47-0	>480	>480	>480	6	<0.05	0.05	No degradation
benzoyl chloride	L	98-88-4	>480	>480	>480	6	<0.05	0.05	No degradation
benzyl alcohol	L	100-51-6	>480	>480	>480	6	<0.05	0.05	No degradation
benzyl chloride	L	100-44-7	>480	>480	>480	6	<0.05	0.05	No degradation
bromine	L	7726-95-6	imm	7	8	0	high	0.001	Discolouration
butadiene 1,3	G	106-99-0	>480	>480	>480	6	<0.02	0.02	No degradation
butane	G	106-97-8	>480	>480	>480	6	<0.05	0.05	No degradation
butanol n-	L	71-36-3	>480	>480	>480	6	<0.05	0.05	No degradation
Butyl aldehyde	L	123-72-8	>480	>480	>480	6	<0.05	0.05	No degradation
Butyl ether n-	L	142-96-1	>480	>480	>480	6	<0.05	0.05	No degradation
carbon disulphide	L	75-15-0	>480	>480	>480	6	<0.05	0.05	No degradation
chlorine	G	7782-50-5	>480	>480	>480	6	<0.001	0.001	No degradation
chloroacetic acid (68%)	L	79-11-8	>480	>480	>480	6	<0.001	0.001	No degradation
chlorobenzene	L	108-90-7	120	145	291	5	1.5 (max)	0.05	No degradation
chloroethanol 2-	L	107-07-3	>480	>480	>480	6	<0.02	0.02	No degradation
chloroform	L	67-66-3	3	6	9	0	22.5	0.01	No degradation
cresol m-	L	108-39-4	>480	>480	>480	6	<0.05	0.05	No degradation
cyclohexane	L	110-82-7	>480	>480	>480	6	<0.05	0.05	No degradation
cyclohexanone	L	108-94-1	7	13	>480	6	0.23	0.05	No degradation
dichlorodimethylsilane	L	75-78-5	>480	>480	>480	6	<0.001	0.001	Slight blistering
dichloromethane	L	75-09-2	>480	>480	>480	6	<0.05	0.05	No degradation
diesel fuel	L	-	>480	>480	>480	6	<0.10	0.10	No degradation
diethylamine	L	109-89-7	7	8	11	1	2.1	0.05	Slight swelling
di(2-ethylhexyl)phthalate	L	117-81-7	nt	nt	>480	6	nm	1.0	No degradation
dimethylacetamide N,N	L	127-19-5	223	>480	>480	6	0.08	0.05	No degradation
dimethylformamide N,N	L	68-12-2	>480	>480	>480	6	<0.01	0.01	No degradation
dimethyl sulphate	L	77-78-1	>480	>480	>480	6	<0.02	0.02	No degradation
dimethyl sulphide	L	75-18-3	7	12	29	1	2.6	0.05	No degradation
dimethyl sulphoxide	L	67-68-5	>480	>480	>480	6	<0.02	0.02	No degradation
dioxane 1,4-	L	123-91-1	26	>480	>480	6	0.05	0.01	No degradation

Chemical Name	State	CAS Number	Actual (min.)	ASTM (min.)	EN374-3 (min.)	EN Class	SSPR $\mu\text{g}/(\text{min.cm}^2)$	MDPR $\mu\text{g}/(\text{min.cm}^2)$	Observation
epichlorohydrin	L	106-89-8	>480	>480	>480	6	<0.05	0.05	No degradation
ethanol	L	64-17-5	>480	>480	>480	6	<0.02	0.02	No degradation
ethanolamine	L	141-43-5	>480	>480	>480	6	<0.001	0.001	No degradation
ethyl acetate	L	141-78-6	>480	>480	>480	6	<0.01	0.01	No degradation
ethyl cellosolve acetate	L	111-15-9	>480	>480	>480	6	<0.01	0.01	No degradation
ethylene diamine	L	107-15-3	>480	>480	>480	6	<0.001	0.001	No degradation
ethylene dibromide	L	106-93-4	>480	>480	>480	6	<0.05	0.05	No degradation
ethylene glycol	L	107-21-1	>480	>480	>480	6	<0.05	0.05	No degradation
ethylene oxide	G	75-21-8	>480	>480	>480	6	<0.05	0.05	No degradation
formaldehyde (37%)	L	50-00-0	>480	>480	>480	6	<0.001	0.001	No degradation
formic acid (96%)	L	64-18-6	>480	>480	>480	6	<0.001	0.001	Discolouration
furaldehyde 2-	L	98-01-1	7	16	>480	6	0.50	0.02	No degradation
glutaraldehyde (5%)	L	111-30-8	>480	>480	>480	6	<0.10	0.10	No degradation
heptane	L	142-82-5	>480	>480	>480	6	<0.02	0.02	No degradation
hexane	L	110-54-3	>480	>480	>480	6	<0.05	0.05	No degradation
hydrazine monohydrate	L	7803-57-8	>480	>480	>480	6	<0.001	0.001	No degradation
hydrochloric acid (37%)	L	7647-01-0	>480	>480	>480	6	<0.001	0.001	No degradation
hydrofluoric acid (48%)	L	7664-39-3	>480	>480	>480	6	<0.02	0.02	No degradation
hydrofluoric acid (73%)	L	7664-39-3	30	267	>480	6	0.18	0.01	No degradation
hydrogen chloride	G	7647-01-0	>480	>480	>480	6	<0.001	0.001	No degradation
hydrogen fluoride (anhydrous gas)	G	7664-39-3	132	244	304	5	nm	0.01	Degraded and discoloured
hydrogen fluoride (anhydrous liquid)	L	7664-39-3	52	125	228	4	1.5	0.01	Degraded and discoloured
hydrogen peroxide (30%)	L	7722-84-1	>480	>480	>480	6	<0.001	0.001	No degradation
kerosene	L	8008-20-8	>480	>480	>480	6	<0.05	0.05	No degradation
mercuric chloride (sat. solution)	L	7487-94-7	>480	>480	>480	6	<0.001	0.001	No degradation
methacrylic acid	L	79-41-4	>480	>480	>480	6	<0.001	0.001	No degradation
methanol	L	67-56-1	46	57	>480	6	0.54	0.02	No degradation
methyl acrylate	L	96-33-3	118	231	>480	6	0.15	0.02	No degradation
methyl-t-Butyl-ether	L	1634-04-4	145	248	>480	6	0.16	0.05	No degradation
methyl chloride	G	74-87-3	>480	>480	>480	6	<0.05	0.05	No degradation
methyl ethyl ketone	L	78-93-3	>480	>480	>480	6	<0.05	0.05	No degradation
methyl mercaptan	G	74-93-1	>480	>480	>480	6	<0.001	0.001	No degradation
methyl methacrylate	L	80-62-6	58	97	>480	6	0.42	0.02	No degradation
methyl vinyl ketone	L	78-94-4	>480	>480	>480	6	<0.05	0.05	No degradation
Methyl -2-pyrrolidone n-	L	872-50-4	6	12	>480	6	0.74	0.05	No degradation
methylene bromide	L	74-95-3	28	39	>480	6	0.45	0.05	No degradation
nicotine	L	54-11-5	nt	nt	>480	6	nm	0.10	No degradation
nitric acid (70%)	L	7697-37-2	>480	>480	>480	6	<0.001	0.001	No degradation
nitric acid (>90% fuming)	L	7697-37-2	>480	>480	>480	6	<0.01	0.01	Discolouration
nitrobenzene	L	98-95-3	>480	>480	>480	6	<0.05	0.05	No degradation
nitromethane (96%)	L	75-52-5	>480	>480	>480	6	<0.05	0.05	No degradation
oleum (15% free SO3)	L	8014-95-7	>480	>480	>480	6	<0.001	0.001	No degradation
perchloric acid	L	7601-90-3	>480	>480	>480	6	<0.001	0.001	No degradation
petrol, leaded	L	-	>480	>480	>480	6	<0.10	0.10	No degradation
petrol, unleaded	L	8006-61-9	>480	>480	>480	6	<0.05	0.05	No degradation
phenol (85%)	L	108-95-2	>480	>480	>480	6	<0.05	0.05	No degradation
phosphoric acid (85%)	L	7664-38-2	>480	>480	>480	6	<0.001	0.001	No degradation
phosphorus oxytrichloride	L	10025-87-3	373	437	440	5	5.7 (max)	0.001	No degradation
potassium chromate (sat. solution)	L	7789-00-6	>480	>480	>480	6	<0.05	0.05	No degradation
propan-2-ol	L	67-63-0	>480	>480	>480	6	<0.05	0.05	No degradation
propylene oxide 1,2-	L	75-56-9	75	91	>480	6	0.55 (max)	0.05	No degradation
pyridine	L	110-86-1	19	22	>480	6	0.50 (max)	0.05	No degradation
'Roundup' weedkiller	L	-	>480	>480	>480	6	<0.001	0.001	No degradation
sodium cyanide (45%)	L	143-33-9	>480	>480	>480	6	<0.001	0.001	No degradation
sodium hydroxide (40%)	L	1310-73-2	>480	>480	>480	6	<0.001	0.001	No degradation

Chemical Name	State	CAS Number	Actual (min.)	ASTM (min.)	EN374-3 (min.)	EN Class	SSPR $\mu\text{g}/\text{cm}^2/\text{min}$	MDPR $\mu\text{g}/\text{cm}^2/\text{min}$	Observation
sodium hypochlorite (12% chlorine)	L	7681-52-9	>480	>480	>480	6	<0.001	0.001	No degradation
styrene	L	100-42-5	157	208	>480	6	0.51 (max)	0.05	No degradation
sulphur dioxide	G	7446-09-5	>480	>480	>480	6	<0.001	0.001	No degradation
sulphuric acid (50%)	L	7664-93-9	>480	>480	>480	6	<0.001	0.001	No degradation
sulphuric acid (95-98%)	L	7664-93-9	>480	>480	>480	6	<0.001	0.001	No degradation
tetrachloroethylene	L	127-18-4	>480	>480	>480	6	<0.05	0.05	No degradation
tetrahydrofuran	L	109-99-9	23	27	41	2	4.1	0.05	No degradation
toluene	L	108-88-3	39	79	173	4	2.0	0.04	No degradation
toluene 2,4-diisocyanate	L	584-84-9	>480	>480	>480	6	<0.10	0.10	No degradation
toluidine o-	L	95-53-4	>480	>480	>480	6	<0.05	0.05	No degradation
trichloroacetic acid (80%)	L	650-51-1	>480	>480	>480	6	<0.001	0.001	No degradation
trichlorobenzene 1,2,4-	L	120-82-1	>480	>480	>480	6	<0.05	0.05	No degradation
trichloroethylene	L	79-01-6	12	14	21	1	12.1	0.05	No degradation
trifluoroacetic acid	L	76-05-1	>480	>480	>480	6	<0.001	0.001	No degradation
triethylamine	L	121-44-8	59	71	168	4	1.7	0.05	No degradation
vinyl acetate	L	108-05-4	>480	>480	>480	6	<0.05	0.05	No degradation
xylene (iso-mix)	L	1330-20-7	377	399	>480	6	0.35 (max)	0.05	No degradation

Key:

State	L-Liquid, G-Gas	>	Larger than
CAS Number	Chemical abstracts service registry number	<	Smaller than
ASTM (min.)	Normalized breakthrough time at a rate of 0.1 μg per cm^2 per minute, in minutes.	imm	Immediate (< 10 min)
EN374-3 (min.)	Normalized breakthrough time at a rate of 1.0 μg per cm^2 per minute, in minutes.	nm	Not measured
EN Class	Performance classification according to EN 14325	nt	Not tested
SSPR $\mu\text{g}/\text{cm}^2/\text{min}$	Steady state permeation rate in μg per cm^2 per minute	max	Maximum Permeation Rate (SSPR not reached)
MDPR $\mu\text{g}/\text{cm}^2/\text{min}$	Minimum detectable permeation rate in μg per cm^2 per minute		

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RESPIREX™

Living + Breathing Personal Protection

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