

MICROCHEM® 4000



Applications

- Chemical handling / transportation
- Oil-based mud protection
- Hazardous waste remediation
- Sewage purification Installations
- Industrial / tank cleaning
- HAZMAT Emergency Response (i.e. Level B)
- Pharmaceutical
- Mining
- Agriculture



MICROCHEM® 4000 is designed to provide an exceptional barrier against organic and inorganic chemicals and biological agents.

Features & Benefits

Protection - Permeation tested against over 160 chemicals, including chemical warfare agents

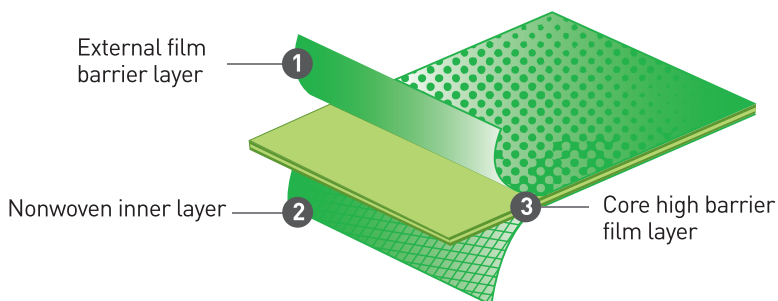
Comfort - Textile like inner improves wearer acceptance

Anti-static - Tested according to EN 1149-1

Designed to protect - Typical coverall features include dual zip systems and double sleeves

MICROCHEM® 4000

A unique multi-layer barrier fabric renowned for its lightweight, yet robust textile feel and exceptional barrier to organic & inorganic chemicals.

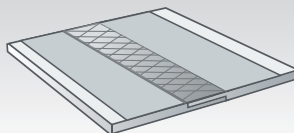


Protection Levels & Additional Properties

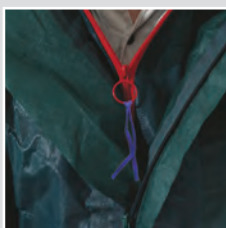


Ultrasonically Welded & Taped Seams

A feature throughout the MICROCHEM® 4000 range, this seam technology is our highest barrier to liquids and particulates.



Innovative Design Features



Double zip system helps ensure a liquid tight seal without the need for additional taping



Double cuff design to enable a spray-tight connection with chemical protective gauntlets (additional taping or Glove Link is required)

Specialist Approvals

MICROCHEM® 4000 has passed a range of specialist testing methods including:



Biological Agents
EN14126 : 2003
See page 9



Suitable for Ex-Zones
See page 10

Technical Support

Contact the Microgard technical team to discuss facilitating independent permeation testing of your specific chemical or chemical mixture

Email: technical@microgard.com

Technical datasheets & product flyers available to download at: www.microgard.com



MICROCHEM® 4000 Range Overview

MICROCHEM® 4000

Protection against concentrated organic and inorganic chemicals.



▲ MICROCHEM® 4000

MICROCHEM® 4000 Model 151

Developed for the emergency services. Rubber face seal for use with full face respirators.



▲ MICROCHEM® 4000 151 - See page 42

MICROCHEM® 4000 APOLLO

Encapsulated Type B suit developed in conjunction with the UK Fire & Rescue Services.



▲ MICROCHEM® 4000 APOLLO - See page 41

MICROCHEM® 4000 PAPER

Encapsulated suit for use in conjunction with Sundström SR500 / SR500EX PAPR fan unit & filters.



▲ MICROCHEM® 4000 PAPER - See page 43

MICROCHEM® 4000

MICROCHEM® 4000 Technical Data

MICROCHEM® 4000 is extensively tested in accordance with statutory requirements, including physical performance attributes and barrier to hazardous substances. The following tables outline the results obtained in independent laboratories according to European test methods.

Test Method	Result	EN Class (EN 14325)
EN 530 Abrasion	2,000 cycles	6 of 6
EN ISO 7854 Flex Cracking	40,000 cycles	5 of 6
EN ISO 9073-4 Tear Resistance (Machine Direction)	88N	3 of 6
EN ISO 9073-4 Tear Resistance (Cross Direction)	44N	
EN ISO 13934-1 Tensile Strength (Machine Direction)	172N	2 of 6
EN ISO 13934-1 Tensile Strength (Cross Direction)	84N	
EN 863 Puncture Resistance	16N	2 of 6
EN ISO 13938-1 Burst Resistance	116kPa	2 of 6
EN 13274-4 Resistance to ignition	Pass	-
EN 13274-4 Resistance to flame	Pass	1 of 3
EN 1149-1 Electrostatic Properties (Surface Resistance)	<2.5 x 10 ⁹	-
ISO 13935-2 Seam Strength	185.2N	4 of 6

MICROCHEM® 4000 has been tested against over 160 chemicals. For further information on permeation testing and a more extensive list of chemicals see page 55 onwards.

EN ISO 6529 Chemical Permeation Test Results			
Chemical Name	CAS Number	BT at 1.0µg/cm ² /min	EN Class (EN 14325)
Acetone	67-64-1	>540	6 of 6
Acetonitrile	75-05-8	>540	6 of 6
Chlorine Gas (>99.8 wt%)	7782-50-5	>540	6 of 6
Chromium Trioxide (50 wt%)	1333-82-0	>480	6 of 6
Ethyl Acetate	141-78-6	>540	6 of 6
Heptane-n (99.8%)	142-82-5	>540	6 of 6
Hydrofluoric Acid (71-75 wt%)	7664-39-3	>540	6 of 6
Hydrogen Chloride Gas (>99.0 wt%)	7647-01-0	>540	6 of 6
Hydrogen Peroxide (35%)	7722-84-1	>480	6 of 6
Methanol	67-56-1	>540	6 of 6
Methyl Ethyl Ketone	78-93-3	>540	6 of 6
Nitric Acid conc (70%)	7697-37-2	>540	6 of 6
Sodium Hydroxide (40 wt%)	1310-73-2	>540	6 of 6
Sulphuric Acid (96%)	7664-93-9	>540	6 of 6
Toluene	108-88-3	>540	6 of 6

TNO Protocols – Resistance to permeation of Chemical Warfare Agents			
Chemical	Detection Limit	Temperature (°C)	Breakthrough Time (hh:mm)
Mustard (HD)	0.1µg/cm ² (pinpoint BT) or 4µg/cm ² (continuous and homogenous BT)	37	>24:00
Lewisite (L)	Approx. 0.5 µg/cm ²	37	>05:00 <06:00
Sarin (GB)	Approx. 0.05 µg/cm ²	37	>24:00
VX	Approx. 0.05 µg/cm ²	37	>24:00

MICROCHEM® 4000 when tested in accordance with EN 14126: 2003 demonstrates an excellent barrier to infective agents. The specific test results are detailed in the table below and for further information on this European Norm see page 7.

EN14126 Barrier to Infective Agents	Result	EN Class
ISO 16603 Resistance to penetration by blood/fluids under pressure	Pass to 20kPa	Class 6 of 6
ISO 16604 Resistance to penetration by blood borne pathogens	Pass to 20kPa	Class 6 of 6
EN ISO 22610 Resistance to wet bacterial penetration (mechanical contact)	No penetration (up to 75 mins)	Class 6 of 6
ISO/DIS 22611 Resistance to biologically contaminated aerosols	No penetration	Class 3 of 3
ISO 22612 Resistance to dry microbial penetration	No penetration	Class 3 of 3

MICROCHEM® 4000 products have been extensively tested according to European and International requirements, including ASTM, for both physical and barrier performance. More details can be found on our website www.microgard.com

MICROCHEM® 4000 Coverall Models

Model 103

Suit Features

- Collar
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated outer cuffs, waist and ankles

Sizes: S-3XL
Colour: Green



Model 111

Suit Features

- 2 piece hood
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated hood, outer cuffs, waist and ankles

Sizes: S-3XL
Colour: Green



Model 121

Suit Features

- 2 piece hood
- Double zip closure
- Elasticated hood, waist and ankles
- Attached Ansell Barrier Gloves

Sizes: S-3XL
Colour: Green



Model 122

Suit Features

- 2 piece hood
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated hood, outer cuffs, waist and boot overflaps
- Integrated socks with boot overflap

Sizes: S-3XL
Colour: Green



Model 125

Suit Features

- 2 piece hood
- Double zip closure
- Elasticated hood, waist and boot overflaps
- Integrated socks with boot overflap
- Attached Ansell Barrier Gloves

Sizes: S-3XL
Colour: Green

