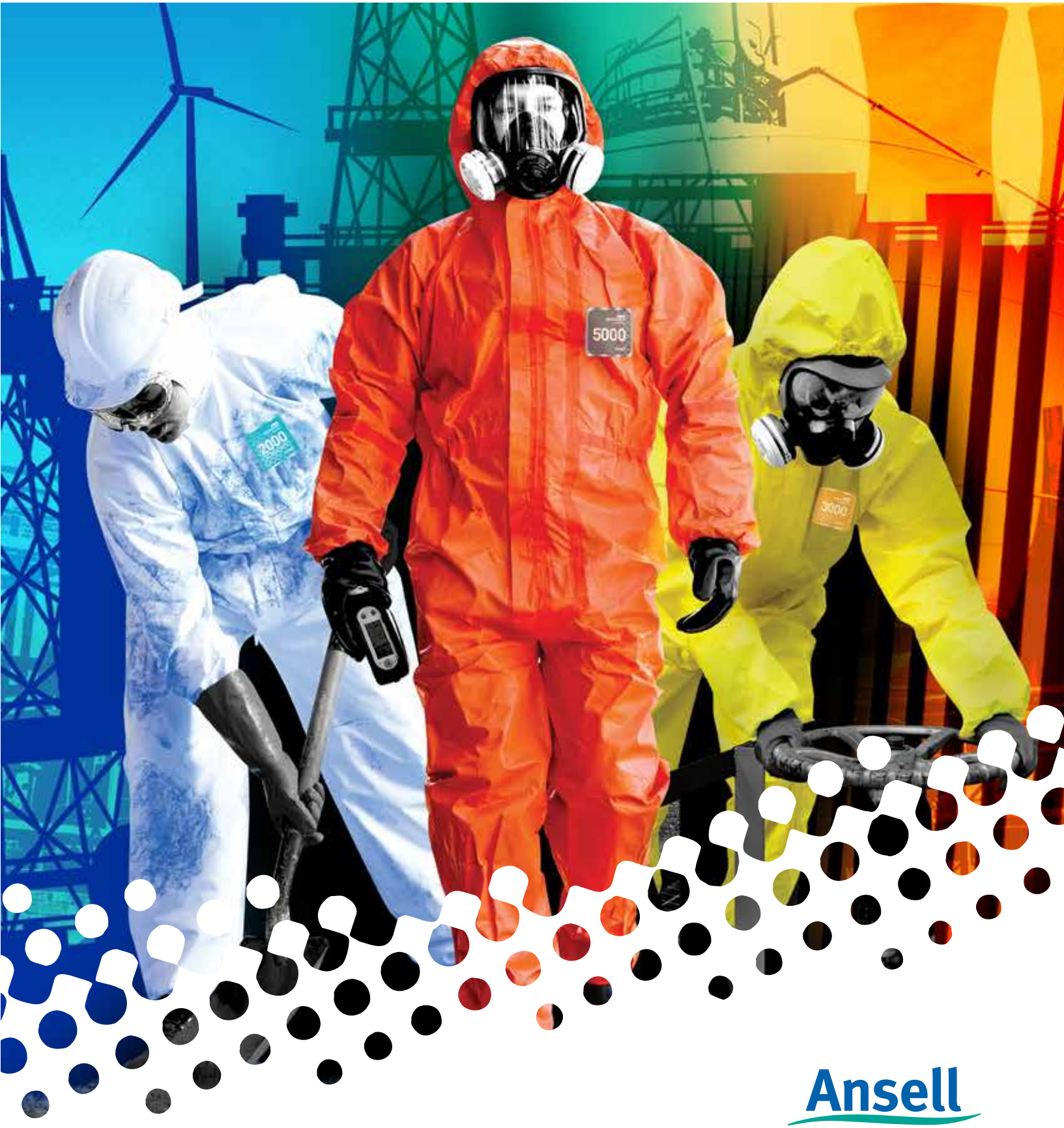
Product Catalog
Chemical Protective Apparel

MICROCHEM®
by AlphaTec®



Ansell

About Ansell

Every day millions of people around the world depend on Ansell in their professional and personal lives. As one of the world's leading manufacturers of limited use chemical protective apparel, Ansell has built its reputation on introducing new technology and designs to the market to improve wearer protection and comfort.

MICROCHEM® by AlphaTec® is a leading brand of chemical protective apparel, which provides excellent protection and confidence to workers who rely on Ansell products to defend them in hostile chemical environments. Our protective suits offer high performance for liquid, vapor and particulate exposures.

Protecting people while they work in dirty or hazardous environments has always been our focus. Whether you are working with liquid or solid chemicals, asbestos, paint, oil, grease, viruses and blood borne pathogens, or one of the countless other workplace contaminants in evidence today, trust MICROCHEM® by AlphaTec® protective apparel to help keep you protected.

Contents

MICROCHEM® by AlphaTec®

Experts in Manufacturing & Design

MICROCHEM® by AlphaTec® products are manufactured in accordance with the International Quality Standard ISO 9001 at our wholly owned state-of-the-art manufacturing plant in Xiamen (China).

MICROCHEM® by AlphaTec® products are designed to meet or exceed the requirements of the European PPE Directive 89/686/EEC for chemical protective apparel.

The combination of our ISO 9001 accredited manufacturing environment and the expertise of our UK based design, product development and technical departments means that users can be assured that all MICROCHEM® by AlphaTec® products achieve the standards they were designed to meet.

Our management systems are assessed and certified by SGS (notified body no. 0120) as meeting the requirements of PPE Directive 89/686/EEC (Article 11B) to manufacture personal protective equipment.


Microgard Xiamen Ltd.

ISO 9001:2000

A modern company committed to the principles of an ethical manufacturing policy.

It is our policy to protect the general welfare and occupational health and safety of any employee involved in the manufacturing process of the MICROCHEM® by AlphaTec® range of protective garments and allied products.

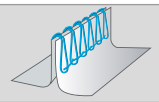
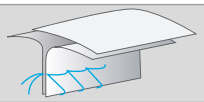
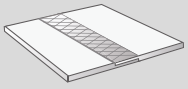
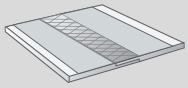
We are committed to the principles of the Ethical Trading Initiative Base Code. These recommendations conform to the standards of the International Labour Organisation, which states that in particular, no child labor will ever be used in any process and all of our employees enjoy safe, hygienic and comfortable working conditions.

All of our products are manufactured in Xiamen, China. Opened in 2008 on the modern AEPZ Export Development Zone, our facility was designed and built to the highest standards and allows every employee to enjoy clean, safe and climate controlled working conditions, excellent canteen and sanitary facilities together with free, first class dormitory accommodation.

Seam Technology, Catalog Number Explanation and Coverall Size Chart

MICROCHEM® by AlphaTec® Seam Technology

Ansell uses five different seam types for its range of protective clothing depending on the fabric and the final application for which it will be used.

				
Serged Seams	**Bound Seams**	**Serged & Taped Seams**	**Ultrasonically Welded Seams**	**Ultrasonically Welded & Taped Seams**
3-thread overlocking technology, which offers an excellent balance of a strong seam with good particle barrier. Internal stitching reduces the risk of any potential linting from the thread.	An overlay of material similar to the base fabric is lock-stitched in place. This technology provides superior strength, liquid and particle barrier when compared to a traditional stitched seam.	Internal stitching which is overtaped to offer increased strength and an effective barrier to liquids and particulates.	Provides a strong liquid and particle barrier.	A feature throughout the 68-4000 and 68-5000 range, this seam technology is our highest barrier to liquid and particulates.

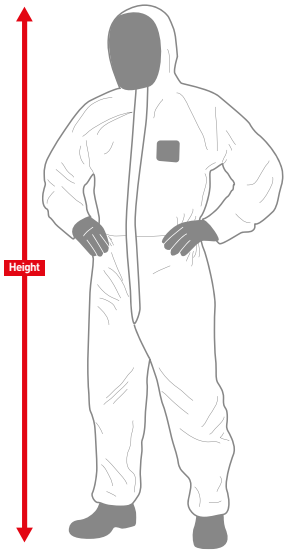
Catalog Number Explanation

WH	15	-	S	-	92	-	101	-	02
Color WH = white YE = yellow GR = green OR = orange RD = red NV = navy BL = blue YY = yellow	**Fabric** 15 = 1500 18 = 1800 20 = 2000 23 = 2300 25 = 2500 30 = 3000 40 = 4000 50 = 5000 60 = 6000 96 = CFR 17 = 1500 + FR		**Seam** T - taped W - welded B - bound S = serged		**Country**		**Model** 100,103 = coverall with collar 101,111 = coverall with hood 100,111 = coverall with hood & boots 122 = coverall with hood & socks 2XX = coats/gowns 3XX = pants 4XX = overshoes 5XX = hoods 6XX = sleeves 7XX = Ventilated		**Size** 02 = Small 03 = Medium 04 = Large 05 - XLarge 06 = 2XLarge 07 = 3XLarge 08 = 4XLarge 09 = 5XLarge

Fabrics	
15 = 1500 18 = 1800 20 = 2000	Particulate / light splash
23 = 2300 25 = 2500	Particulate / light splash, entry level chemical
30 = 3000 40 = 4000 50 = 5000	Chemical splash, non-gas tight
60 = 6000	Chemical splash, gas tight
17 = 1500+FR	FR for particulate/light splash
96 = CFR	Chemical FR / non-gas tight

MICROCHEM® by AlphaTec® Coverall Size Chart

This size chart is intended to be used as a guide only.



	WEIGHT (in Pounds)	HEIGHT (in Feet)
02	100-125	5'-5'7"
03	125-160	5'2"-5'7"
04	140-200	5'5"-5'10"
05	158-220	5'7"-6'2"
06	180-240	5'11"-6'4"
07	230-260	6'2"-6'5"
08	245-300	6'3"-6'7"
09	265-320	6'5"-6'10"

Product Range Overview

MICROCHEM® by AlphaTec® Fabric Technology

MICROCHEM by AlphaTec 1500	1500 utilizes the latest in microfiber technology, is highly breathable and has been proven to filter 100% of particles down to 3 microns in size, making it ideal for protecting workers against asbestos and other relatively large hazardous particulates.
MICROCHEM by AlphaTec 1500 PLUS	1500 PLUS utilizes the latest in microfiber technology, is highly breathable and anti-static. It has been proven to filter 99.9% of particles down to 3 microns in size, making it ideal for protecting workers against low hazard pharmaceutical powders and other relatively large hazardous particulates.
MICROCHEM by AlphaTec 1800	1800 is a lightweight, breathable microporous film laminate material and so is particularly suited to warmer working environments. Provides protection from low hazard liquid splash and particulates.
MICROCHEM by AlphaTec 2000	2000 provides both protection and comfort with the latest microporous film laminate technology, providing exceptional liquid and particulate protection. Ideal for a wide range of industrial applications where protection from low hazard liquid spray and fine particulates is required.
MICROCHEM by AlphaTec 2300	2300 fabric is comprised of a polyethylene (PE) barrier coating with a bi-component nonwoven inner layer; the combination of which provides an excellent barrier to many harmful chemicals, while being lightweight and yet relatively strong and durable.
MICROCHEM by AlphaTec 2500	2500 is a unique material offering exceptional mechanical strength, liquid and particulate protection. Achieves the highest classifications for protection from biological agents, in accordance with EN 14126:2003, and blood borne pathogens in accordance with ASTM 1671.
MICROCHEM by AlphaTec 3000	3000 is one of the lightest and most comfortable chemical protective fabrics on the market today. This durable 3 layer fabric provides an extremely effective barrier against both inorganic chemicals and biological hazards.
MICROCHEM by AlphaTec 4000	4000 is an exceptional chemical barrier against many concentrated organic, inorganic chemicals and biological agents. Tested against over 190 chemicals, including chemical warfare agents, this multi-layer fabric is renowned for being lightweight yet durable and comfortable.
MICROCHEM by AlphaTec 5000	5000 reaches new levels in chemical protection. This highly visible innovative multi-layer fabric is strong, durable and suitable for workers in extremely hazardous areas, including HAZMAT response teams.
MICROCHEM by AlphaTec 6000	6000 is a lightweight, flexible and yet incredibly strong material which provides an excellent barrier to numerous hazardous chemicals including chemical warfare agents.
MICROCHEM by AlphaTec 1500 PLUS FR	1500 PLUS FR is a highly breathable, flame-retardant and anti-static SMMS polypropylene nonwoven designed for protection from particulates and light, non-flammable liquid spray or splash.
MICROCHEM by AlphaTec CFR	CFR is a flame retardant material designed to be worn over woven thermal protective garments, offering protection from particulates and pressurised liquid spray without compromising worker protection in the event of a flash fire.

Guide to Standards

Until recently in North America there has been no comprehensive set of standards for assessing the performance of chemical protective apparel. Safety and occupational health professionals have therefore relied upon manufacturers' claims in order to select the appropriate apparel for their chemical hazard.

In Europe, chemical protective apparel manufacturers and their products are regulated by European Directive 89/686/EEC ("the PPE directive"). Products which are intended to protect people's skin from chemicals and other hazardous substances are regarded as being of "Complex" design according to Article 8 of this directive. This means they are subject to a detailed examination of their performance and periodic, on-going compliance supervision by an independent organisation known as a notified body. Compliance with one or more European Norms (EN) is an accepted means of demonstrating a product's conformance with the PPE Directive and offers an indication of its potential for use in a hazardous chemical environment. As such, the European Union defined a norms (standards) system based on "Types" and classes. Chemical protective apparel is categorized into one or more of these Types, with the designation based upon the physical state of the hazard.

Current European "Types" of Chemical Protective Clothing

EN "Types"	Definition	Symbol*
EN 943-1 & 2 **"Type 1"** **ISO 16602**	**Gas Tight Chemical Protective Clothing** Protective clothing against liquid and gaseous chemicals,aerosols and solid particulates	
EN 14605 **"Type 3"** **ISO 16602**	**Liquid Tight Suits** Suits which can protect against strong and directional jets of liquid chemical	
EN 14605 **"Type 4"** **ISO 16602**	**Spray Tight Suits** Suits which offer protection against saturation of liquid chemicals	
EN ISO 13982-1 **"Type 5"** **ISO 13982-1**	**Dry Particulate Protection** Suits which provide protection to the full body against airborne solid particulates	
EN 13034 **"Type 6"** **ISO 16602**	**Reduced Spray Suits** Suits which offer limited protection against a light spray of liquid chemicals	

Additional Standards achieved by the MICROCHEM® by AlphaTec® product range

Standard	Definition	Symbol*
EN 1073-1**	Ventilated protective clothing against radioactive particulate contamination	
EN 1073-2**	Protective clothing against radioactive particulate contamination	
EN 14126	Protective clothing against infective agents ("Type" prefixed with "-B" [i.e. Type 3-B] indicates approval to this European Norm)	
EN 1149-5	Protective Clothing with electrostatic properties***	
DIN 32781	Protective Clothing. Protective suits against pesticides	
EN ISO 14116	Protective Clothing Limited flame spread materials, material assemblies and clothing	
EN 12941	Respiratory protective devices. Powered filtering devices incorporating a helmet or a hood	
EN 14594	Respiratory Protective Devices Continuous flow compressed airline breathing apparatus	

Article 8
Article 8 brings together PPE covered by the Directive into three distinct groups and their relevant conformity assessment procedures. These are named in the Directive as "Simple design", "Complex design" and neither of these, the last being a third Category. Whilst the Directive does not explicitly define these three groups as Categories, it is common practice to use the terms Category I, III and II respectively.

The categories are:
- Category I ("simple design"): the PPE defined by the exhaustive list at Article 8(3). The manufacturer declares conformity by means of an EC declaration of conformity only;

- Category II (neither simple nor complex): PPE not defined by Article 8(3) & (4)(a) are subject to an EC type-examination by a Notified Body and an EC declaration of conformity is then produced;

- Category III (so-called "complex design"): the PPE defined by the exhaustive list at Article 8 (4)(a) are subjected to EC type-examination (see Article 8 (2)) and to one of the two Quality Assurance procedures as described at Article 11A and 11B. An EC declaration of conformity is produced.

Disclaimer
MICROCHEM® by AlphaTec® garments are available for most applications. However please note that a detailed assessment of the nature of the hazard and the working environment should be undertaken prior to the selection of appropriate PPE. Ansell provides the information in this product catalogue to assist you with selecting the correct product, but responsibility for the correct choice of PPE remains with the user.

* Type approvals do not necessarily apply to accessories. Always refer to the garment label and instructions for use document which will indicate the protection level offered.

** Gives no protection against ionizing radiation.

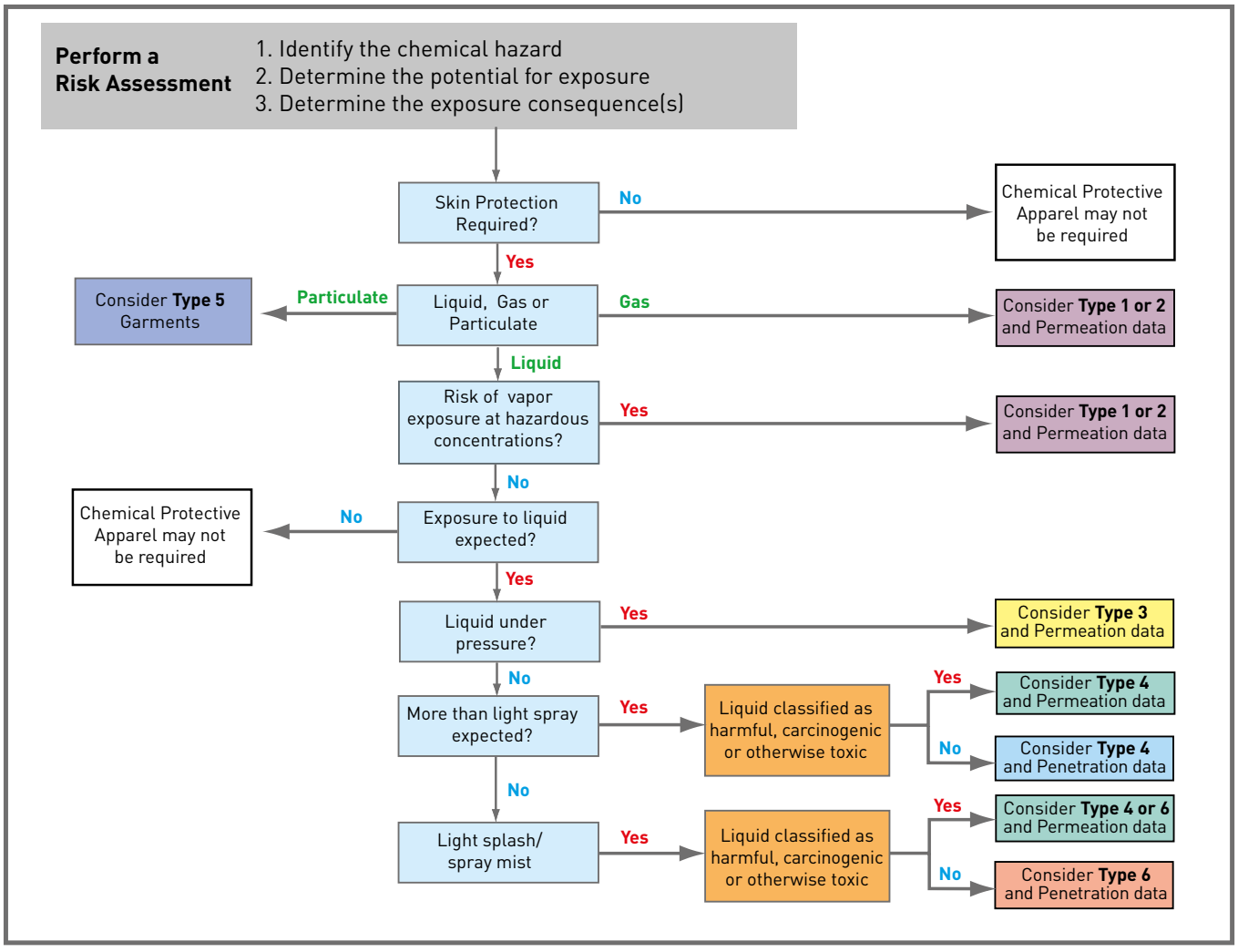
*** Always ensure the garment and wearer are properly grounded.

Selecting the Correct Chemical Protective Apparel

MICROCHEM® by AlphaTec®

This simple flowchart has been devised as a basic tool to assist users and specifiers in selecting the correct "type" of chemical protective apparel.

It is important that protective apparel's suitability for a particular use is determined by a trained expert in occupational health & safety. Many chemicals can cause serious and permanent injury to an unprotected or improperly protected user. Therefore, special emphasis has to be placed on the careful selection of chemical protective apparel when the potential for exposure to such chemicals has been identified.



Factors to Consider

Advice on the suitability of chemical protective apparel for a task is very often based on reported permeation breakthrough times. The standard test methods used for measuring breakthrough time (i.e. EN 374-3, ISO 6529, ASTM F 739) are often regarded as representing the "worst case scenario", since the chemical is held in direct contact with the barrier material. Intermittent contact or splashes of chemical, in real-life, may in fact lengthen the breakthrough time. Also, laboratory generated chemical permeation data may not always reflect conditions in the workplace. Temperature, pressure, flexing etc. could all potentially have an impact on the breakthrough time. When choosing chemical protective apparel consideration has to be given to permeation and penetration, and the physical performance attributes of the product (abrasion, tear, tensile, strength etc.) Other physical properties to consider are the strength of seams and closures (i.e. zips) the flexibility, weight and comfort factors (i.e. thermal insulation, breathability etc.) The best chemically resistant material will be ineffective if torn, cut, punctured or otherwise damaged.

Important note: This guide is simplified and as such chemical protective apparel's suitability for a particular use should only be determined by a trained expert in occupational health & safety. It is the responsibility of the user to assess the types of hazards and the risks associated with exposure and to verify the information provided for the product to make a final decision on the appropriate personal protective equipment needed for their specific circumstance.

Protective Apparel for Protection from Infective Agents

Protective Apparel against infective agents has two main functions...

- to prevent infective agents from reaching the (possibly injured) skin
- to prevent the spreading of infective agents to other people and other situations, e.g. eating or drinking, when the person has taken his protective apparel off

In many work situations i.e. microbiological laboratories; the infective agents can be contained and the risk of exposure limited to the occurrence of an accident.

However, in other types of work i.e. sewage & waste water treatment, caring for infected animals, emergency clean-up; the organisms cannot be contained, exposing the worker continuously to the risk of infection by biological agents. In these situations the biological agents the worker is exposed to may not be known.

Applications where workers can be exposed to biological agents

- Waste water treatment works, sewage systems work
- Agriculture
- Food Industry
- Healthcare, hospitals, emergency services
- Clinical, veterinary laboratories
- Refuse disposal plants
- Activities where there is contact with animals and/or products of animal origin

Protection from Bloodborne Pathogens

Occupational exposure to bloodborne pathogens is governed in the United States by Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogens regulation – 29 CFR 1910.1030. This regulation states that "personal protective equipment (PPE) is to considered appropriate only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used."

Where specified, MICROCHEM® by AlphaTec® products have been tested in accordance with the following standards relevant to protection from infective agents and bloodborne pathogens:

- **EN 14126:2003** Performance requirements and tests methods for protective apparel against infective agents (Compliance with this standard is indicated by the Type approval hyphenated with the letter "B" e.g. Type 3-B)
- **ASTM F1671-07** Standard Test Method for Resistance of Materials Used in Protective Apparel to Penetration by Blood-Borne Pathogens. (Only tested if material passes the less stringent ASTM F1670 Standard Test for Resistance of Materials used in Protective Clothing to penetration by synthetic blood)

For further advice and assistance in the selection of appropriate protective apparel contact: **customerserviceus@ansell.com**

MICROCHEM® by AlphaTec® suggested garments for protection against infective agents

Product	Protection against biologically contaminated dust	Protection against biologically contaminated liquids	Tasks*	Risk Groups ✓ Risk Groups 1,2 ✓ Risk Groups 1,2,3,4
1800 Ts PLUS	✓	✓	A/B	1. Biological agent unlikely to cause sickness in humans 2. Biological agent that could cause sickness in humans and represent a danger to employees; substance dispersal amongst the population is unlikely; effective preventitive measures or treatment is normally possible
2000	✓	✓*	A/B	
2000 Ts PLUS	✓	✓	A/B	
2300 2500	✓	✓	B	
3000, 4000 5000 and 6000	✓	✓	B/C	3. Biological agent that can cause severe illness in humans and represent a serious risk for employees; a risk of dispersal amongst the population may occur but effective preventive measures or treatment are normally possible 4. Biological agent that causes severe illness in humans and represents a serious risk for employees; the risk of dispersal amongst the population is high under some circumstances; effective preventive measures or treatment are not normally possible.

*Tasks - A. Routine inspection = no contact with contaminated material or objects B. Handling and disposal of possibly contaminated material, objects or animals
C. Performed tasks require application of cleaning and disinfecting chemicals

Important Note: The OSHA regulations do not mandate or recommend any specific testing for protective apparel for protection from infective agents or bloodborne pathogens. The employer has to make the determination of suitability based on the foreseeable conditions of use for their specific applications. Whilst some MICROCHEM® by AlphaTec® products meet EN 14126/ASTM F1671 requirements, all wearers should conduct an assessment of their workplace hazards to determine the appropriate types and levels of personal protective equipment needed. MICROCHEM® by AlphaTec® protective apparel will not protect the wearer under all conditions of exposure to infective agents, blood-borne pathogens or other hazards. If you are in anyway uncertain please contact the Ansell technical team or consult a safety professional.

Use of MICROCHEM® by AlphaTec® Chemical Protective Apparel in Ex-Zones

MICROCHEM® by AlphaTec®

Ex-Zones

The purpose of 'Zoning' is to provide the basis for correct selection of a protection concept. Areas are classified depending on the properties of the flammable vapors, liquids, mists, gases or combustible fibers/dusts that may be present in the environment and the likelihood that a combustible concentration of that gas or dust is present. Where ignition sources cannot be eliminated and a flammable gas or dust area may be present, it is important to assess the extent and duration of the risk to select the correct equipment. This is normally referred to as 'Zoning' (Ex-Zones).

Zone	Zone Description	MICROCHEM® by AlphaTec® 2000	MICROCHEM® by AlphaTec® 3000	MICROCHEM® by AlphaTec® 4000	MICROCHEM® by AlphaTec® 5000
Zone 0	An area in which a potentially explosive atmosphere, consisting of air and flammable substances – in the form of gas, vapor or mist – is continuously present or present for a long period.	✓	✓	✓	✓
Zone 1	An area in which a potentially explosive atmosphere, consisting of a mixture of air and flammable substances – in the form of gas, vapor or mist – is likely to occur in normal operation	✓	✓	✓	✓
Zone 2	An area in which a potentially explosive atmosphere, consisting of a mixture of air and flammable substances – in the form of gas, vapor or mist – is not likely to occur in normal operation	✓	✓	✓	✓
Zone 20	An area in which a potentially explosive atmosphere, in the form of a cloud of combustible dust in the air, is continuously present or present for long period.	✓	✓	✓	✓
Zone 21	An area in which a potentially explosive atmosphere, in the form of a cloud of combustible dust in the air, is likely to occur in normal operation	✓	✓	✓	✓
Zone 22	An area in which a potentially explosive atmosphere, in the form of a cloud of combustible dust in the air, is not likely to occur in normal operation	✓	✓	✓	✓

Gas Explosion Groups

Group I: Concerned with underground mining where coal dust and methane are present.

Group II: Concerned with surface industries gases & dust. They are sub-grouped according to volatility - IIA being the least volatile and IIC the most volatile.

Having conducted tests at the Swiss Safety Institute, Basel, the table below shows in which situation MICROCHEM® by AlphaTec® protective apparel may be safely worn*. Ex-Zone definitions as specified by CENELEC/IEC†.

Where specified MICROCHEM® by AlphaTec® protective apparel meets the requirements of EN1149-5:2008. For more information please visit **www.ansell.com**

*Ex-Zone testing conducted by the Swiss Safety Institute at 23°c and 30% relative humidity on model 111 coveralls. The anti-static properties of MICROCHEM® by AlphaTec® protective apparel depends on the take up of moisture from the air. The anti-static treatment is therefore only effective when the relative humidity is above 25%. Please note that only the apparel material is dissipative. In order to prevent the creation of a spark, the garment and the wearer should be properly grounded. According to requirements in relevant standards (i.e. BGR 132), clothes and protective suits must not be changed in Ex-Zones if the minimum ignition energy is <3mJ. MICROCHEM® by AlphaTec® protective apparel should not be donned or removed in Ex-Zones.

† Sources: European (Cenelec) Standards **www.cenelec.org**, International (IEC) Standards **www.iec.ch**

NEC & IEC Zone System Gas & Dust Groups		
Area	Group	Representative Materials
Zones 0, 1 & 2	IIC	Acetylene & Hydrogen (equivalent to NEC Class I, Groups A and B)
	IIB+H2	Hydrogen (equivalent to NEC Class I, Group B)
	IIB	Ethylene (equivalent to NEC Class I, Group C)
	IIA	Propane (equivalent to NEC Class I, Group D)
Zones 20, 21 & 22	IIIC	Conductive dusts, such as magnesium (equivalent to NEC Glass II, Group E)
	IIIB	Non-conductive dusts, such as flour, grain, wood and plastic (equivalent to NEC Class II, Groups F & G)
	IIIA	Ignitible fibres/flyings, such as cotton lint, flax & rayon (equivalent to NEC Class III)

MICROCHEM® by AlphaTec® 1500

Features & Benefits

Protection - Proven to filter 100% of particles >3 microns*

Comfort - Air and water vapor permeable ("breathable") to help reduce the risk of heat stress

Silicone free - Critical in spray painting applications

Optimized body fit - Improves wearer comfort and safety.

*KAKEN particle penetration test

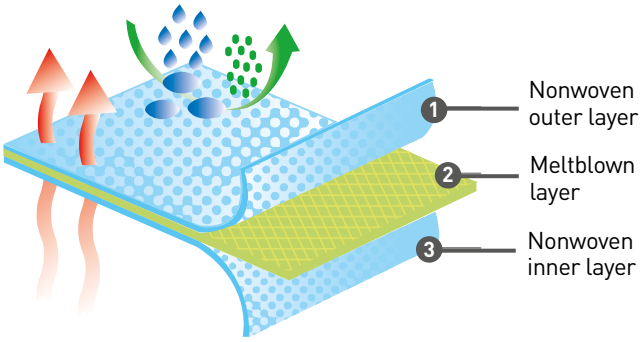
Applications

- Asbestos related work
- Handling powders
- General maintenance
- Construction

MICROCHEM® by AlphaTec® 1500 coveralls have been designed for workers involved in the stripping, clear up or handling of asbestos, general maintenance, construction and contract cleaning.

MICROCHEM® by AlphaTec® 1500

Asbestos fibers, such as Chrysotile, are typically 3-5 microns in size. The SMS fabric used in the construction of 68-1500 coveralls has been proven to filter 100% of particles larger than 3.0 microns*



Range Overview

68-1500

Used for the stripping, clear up or handling of asbestos, general maintenance, construction and contract cleaning.

68-1500 (White)	
Fabric Filtration Efficiency*	
Particle Size	**%**
0.3-0.5 μm	98.7
0.5-1.0 μm	99.2
1.0-3.0 μm	99.7
3.0-5.0 μm	100
>5.0 μm	100

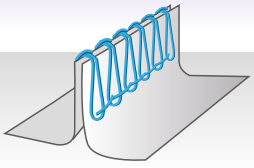
* KAKEN Test Method

Protection Levels & Additional Properties

TYPE 5 TYPE 6 EN 1073-2

Serged Seams

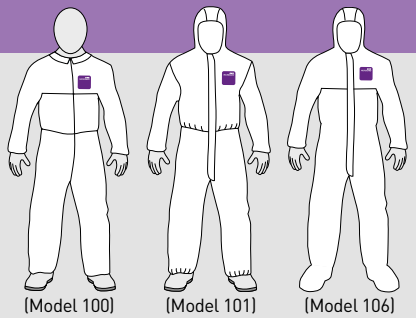
Combining strength with particle barrier



Style 68-1500

Suit Features
- Collar (Model 100)
- 3 piece hood (Model 101)
- 3 piece hood & attached boots (Model 106)
- Elasticated hood, wrists and ankles
- 2-way front zipper with storm-flap

Sizes: S-5XL (02-09)
Colors: All models in White
Models 100 & 101 also Red Navy
Case Qty: 25


(Model 100) (Model 101) (Model 106)

CATALOG #: **WH15-S-92-100 | WH15-S-92-101 | WH15-S-92-106**

Model 422

Overboots
- SURE STEP sole
- Elasticated at ankle and top of overboot

Sizes: 8-12 (-00) and 12-14 (-05)
Colors: White with blue SURE STEP sole
Case Qty: 200 pairs (-00) 150 pairs (-05)

CATALOG #: **WH15-S-92-422-00 / 05**

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

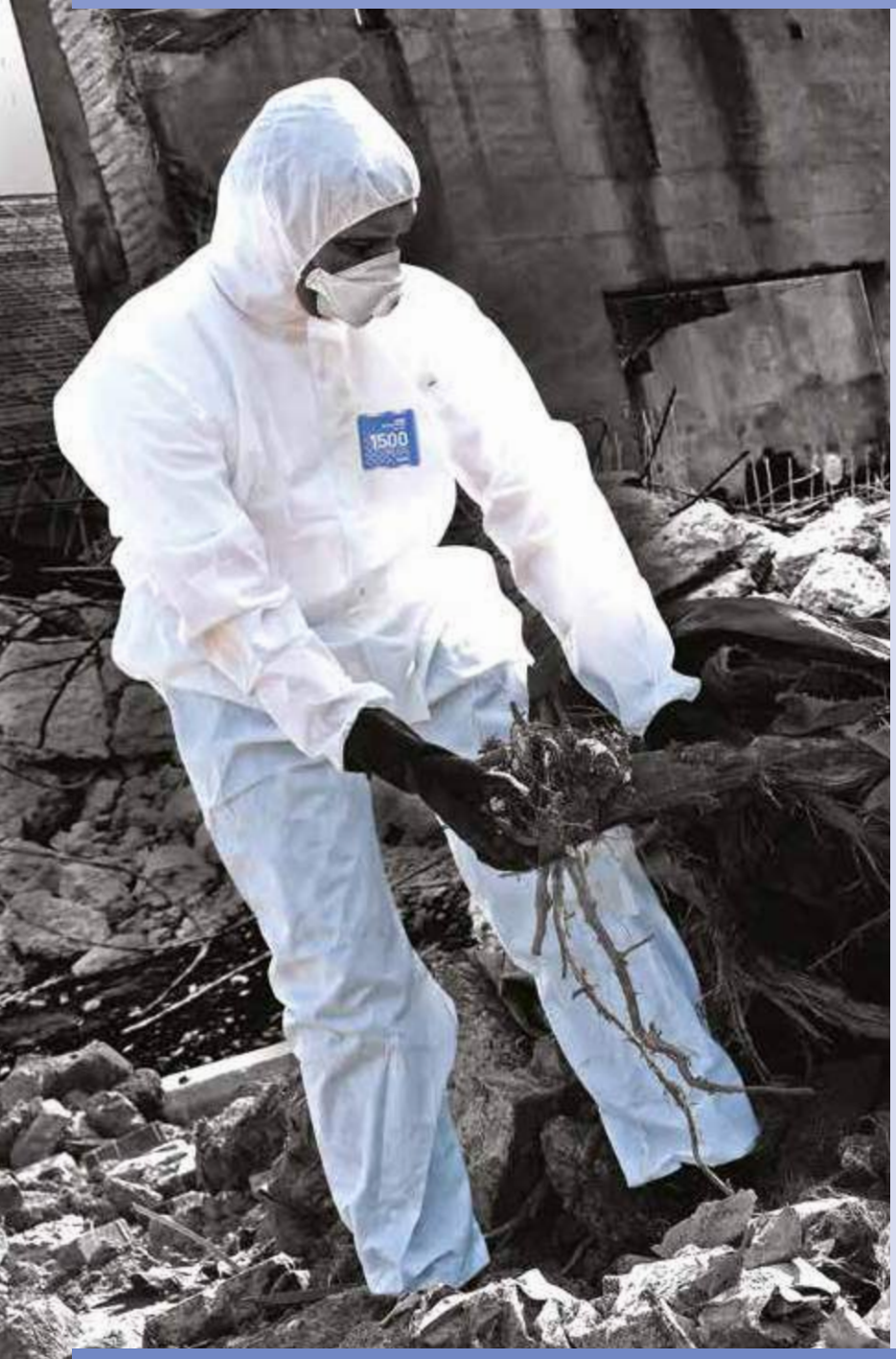
68-1500 Technical Data

Fabric Physical Properties	Test Method	Units	Results**
Tensile strength (MD)	ASTM D5034	lbs	41.0
Tensile strength (CD)			22.9
Tear resistance (MD)	ASTM D5733	lbs	17.3
Tear resistance (CD)			10.1
Burst strength	ASTM D3787	lbs	23
Flame spread	16 CFR §1610	sec	IBE
		(class)	(1)
Barrier Properties	**Test Method**	**Units**	**Results****
Fabric Hydrohead (Resistance to water penetration)	ISO 20811	cm H_2O	>50
Fabric Particle filtration efficiency (>3 μm particle size)	KAKEN	% filtered	100
Whole suit particle inward leakage***	ISO 13982-2	% TIL	2.3
Comfort Properties	**Test Method**	**Units**	**Results****
Air permeability	ASTM D737	$ft^3/min/ft^2$	43.8
Moisture vapor transmission	ASTM E96, Method B	g/m^2-24 hr	1399

** Unless specified the test data is applicable to the white version only. For test results on other colors please contact **customerserviceus@ansell.com**

*** Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for model 111 coveralls. Result for other models may vary. Please contact the Ansell technical team for information on a specific model **customerserviceus@ansell.com**

MICROCHEM® by AlphaTec® 1500 PLUS



Features & Benefits

Protection - Proven to filter 99.9% of particles >3 microns*

Comfort - Air and water vapor permeable ("breathable") to help reduce the risk of heat stress

Silicone free - Critical in spray painting applications

Anti-static - Tested according to EN 1149-5 and AATCC 76

Optimized body fit - Improves wearer comfort and safety

*KAKEN particle penetration test

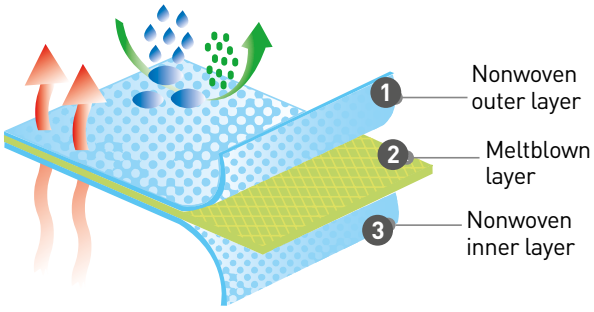
Applications

- Asbestos related work
- Fiberglass / resin applications / ceramic fibers
- Handling powders
- General maintenance
- Pharmaceutical industries
- Wood and metal processing
- Touch-up paint spraying
- Construction

MICROCHEM® by AlphaTec® 1500 PLUS is a highly breathable anti-static SMS fabric which utilizes the latest developments in micro-fiber technology to ensure good filtration efficiency.

MICROCHEM® by AlphaTec® 1500 PLUS

SMS fabrics are a particularly good barrier against particulates such as, asbestos, brick dust and cement dust and will provide protection from light aerosol mists; as found in some paint spray environments.



Range Overview

68-1500 PLUS

Anti-static suit, used for the stripping, clear up or handling of asbestos, general maintenance, construction and contract cleaning.

68-1500 PLUS (White)	
Fabric Filtration Efficiency*	
Particle Size	**%**
0.3-0.5 μm	97.8
0.5-1.0 μm	98.7
1.0-3.0 μm	99.4
3.0-5.0 μm	99.9
>5.0 μm	99.9

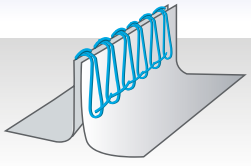
* KAKEN Test Method

Protection Levels & Additional Properties

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5 AATCC 76

Serged Seams

Combining strength with particle barrier



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Style 68-1500 PLUS

Suit Features
- 2-way front zipper with re-sealable storm flap
- Elasticated wrists, waist, finger loops and ankles

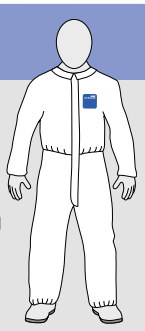
Sizes: S-5XL (02-09)
Colors: White ◯ Light Blue ◯ Navy ●
Case Qty: 25

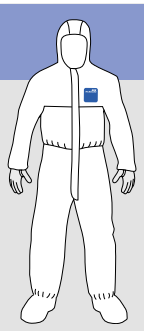
Model 103
- Collar

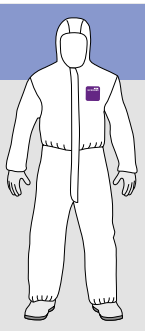
Model 107
- 3 piece hood
- Attached anti-skid boots (Sure Step sole)

Model 111
- 3 piece hood

Model 147
- Attached socks


(Model 103)


(Model 107)


(Model 111)


Lab Coat

CATALOG #: **WH15-S-92-103 | WH15-S-92-107 | WH15-S-92-111 | WH15-S-92-147 | WH15-S-92-204/ 206/208**

68-1500 PLUS Technical Data

Fabric Physical Properties	Test Method	Units	Results**
Tensile strength (MD)	ASTM D5034	lbs	26.3
Tensile strength (CD)			20.8
Tear resistance (MD)	ASTM D5733	lbs	7.1
Tear resistance (CD)			6.4
Burst strength	ASTM D3787	lbs	25
Flame spread	16 CFR §1610	sec	IBE
		(class)	(1)
Surface Resistance at RH 25%	EN 1149-5	Ohms	$<2.5x10^9$
Barrier Properties	**Test Method**	**Units**	**Results****
Fabric Hydrohead (Resistance to water penetration)	ISO 20811	cm H_2O	>50
Fabric Particle filtration efficiency (>3 μm particle size)	KAKEN	% filtered	99.9
Whole suit particle inward leakage***	ISO 13982-2	% TIL	8.7
Comfort Properties	**Test Method**	**Units**	**Results****
Air permeability	ASTM D737	$ft^3/min/ft^2$	30.7
Moisture vapor transmission	ASTM E96, Method B	g/m^2-24 hr	1380

** Unless specified the test data is applicable to the white version only. For test results on other colors please contact **customerserviceus@ansell.com**

*** Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for model 111 coveralls. Result for other models may vary. Please contact the Ansell technical team for information on a specific model **customerserviceus@ansell.com**

MICROCHEM® by AlphaTec® 1800

Features & Benefits

Protection - Low hazard liquid spray, splash and particle protection

Comfort - Moisture vapor permeable ('breathable') to help reduce the risk of heat stress

Silicone free - Critical in spray painting applications

Low linting - Reduces the risk of fiber contamination in some critical areas

Optimized body fit - Improves wearer comfort and safety

Anti-static - Tested according to EN1149-5 and AATCC 76

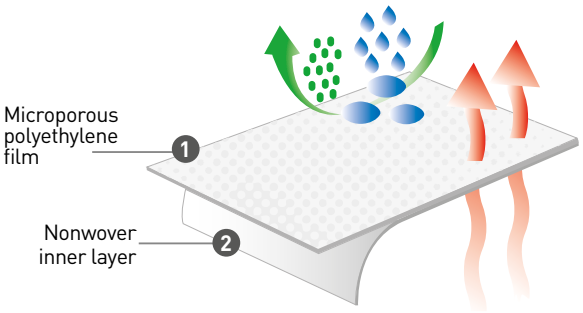
Applications

- General Maintenance
- Paint Spraying
- Powder Handling
- Food

MICROCHEM® by AlphaTec® 1800 provides the wearer with entry level, low hazard liquid and particulate protection. Ideal for a wide range of general industrial applications.

MICROCHEM® by AlphaTec® 1800

68-1800 is a lightweight, breathable material and so is particularly suited to warmer working environments. Provides a good barrier to low hazard liquid spray and fine particulates.

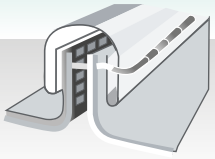


CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Protection Levels & Additional Properties

Bound Seams

Superior strength, liquid and particle barrier



Innovative Design Features

Finger loops to prevent sleeve movement when working above your head

Hoods designed for optimum fit with respirators, particularly full face masks

2-way front zipper with double sided tape (DST) storm flap

Range Overview

68-1800

Used for general maintenance, contract cleaning, oil, paint spraying, powder handling and industrial applications.

68-1800 COMFORT

Provides the perfect balance of comfort and protection from low hazard liquid splash and particulates.

▲ 68-1800 COMFORT- See page 18

Style **68-1800**

Suit Features
- 2-way front zipper with re-sealable storm flap
- Elasticated wrists, waist, and ankles

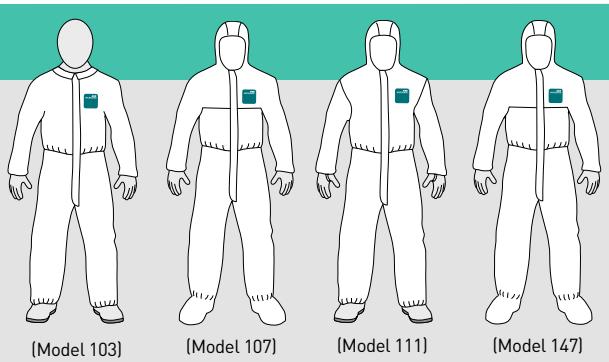
Sizes: S-5XL (02-09)
Case Qty: 25
Color: White

Model 103
- Collar

Model 107
- 3 piece hood
- Attached anti-skid boots (Sure Step sole)

Model 111
- 3 piece hood

Model 147
- Attached socks



(Model 103) (Model 107) (Model 111) (Model 147)

CATALOG #: Model 103: **WH18-B-92-103** | Model 107: **WH18-B-92-107** | Model 111: **WH18-B-92-111** | Model 147: **WH18-B-92-147**

MICROCHEM® by AlphaTec® 1800 COMFORT

MICROCHEM® by AlphaTec® 1800 COMFORT was developed in collaboration with the market leader in wind generation power systems.

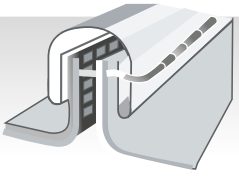
68-1800 COMFORT Coverall

Protection Levels & Additional Properties

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5 AATCC 76

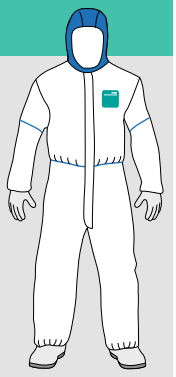
Bound Seams

Superior strength, liquid and particle barrier compared to serged seams



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Model 195



Features & Benefits:

Protection - Proven barrier to low concentration liquid chemicals and airborne particlates

Comfort - Air and moisture vapor permeable ('breathable') SMS hood, full back and underarms to help reduce the risk of heat stress

Silicone free - Critical in spray painting applications

Low linting - Reduces the risk of fiber contamination in some critical areas

Optimized body fit - Improves wearer comfort and safety

Anti-static - Tested according to EN1149-5 and AATCC 76

- 3 piece hood
- 2-way front zipper with re-sealable storm flap
- Elasticated wrists, waist, and ankles
- Finger loops
- Blue SMS hood, full back and underarms

Sizes: S-5XL (02-09)
Case Qty: 25
Color: White / blue SMS hood, full back and underarms

Blue SMS hood, full back & underarms

CATALOG #: Model 195: **WN18-B-92-195**

Applications

- Composites
- General Maintenance
- Paint Spraying
- Surface Preparation

MICROCHEM® by AlphaTec® 1800

68-1800 Technical Data

It is extensively tested according to North American, European and International standards for both physical and barrier performance. More information is available to download from our website **www.ansell.com**

Fabric Physical Properties	Test Method	Units	MPL Results	SMS Results
Tensile strength (MD)	ASTM D5034	lbs	17.66	26.3
Tensile strength (CD)			24.44	20.8
Tear resistance (MD)	ASTM D5733	lbs	7.2	7.2
Tear resistance (CD)			12.4	6.5
Burst strength	ASTM D3787	lbs	21	25
Flame spread	16 CFR §1610	sec	17.3	IBE *
		(class)	(1)	(1)
Barrier Properties	**Test Method**	**Units**	**Results**	
Fabric Hydrohead (Resistance to water penetration)	ISO 20811	cm H_2O	119.5	>40
Whole suit particle inward leakage**	ISO 13982-2	% TIL	3.96%	
Comfort Properties	**Test Method**	**Units**	**Results**	
Moisture vapor transmission	ASTM E96, Method B	g/m²-24 hr	709	1380
Air Permeability	ASTM D737	ft³ / ft²	<0.13	30.7

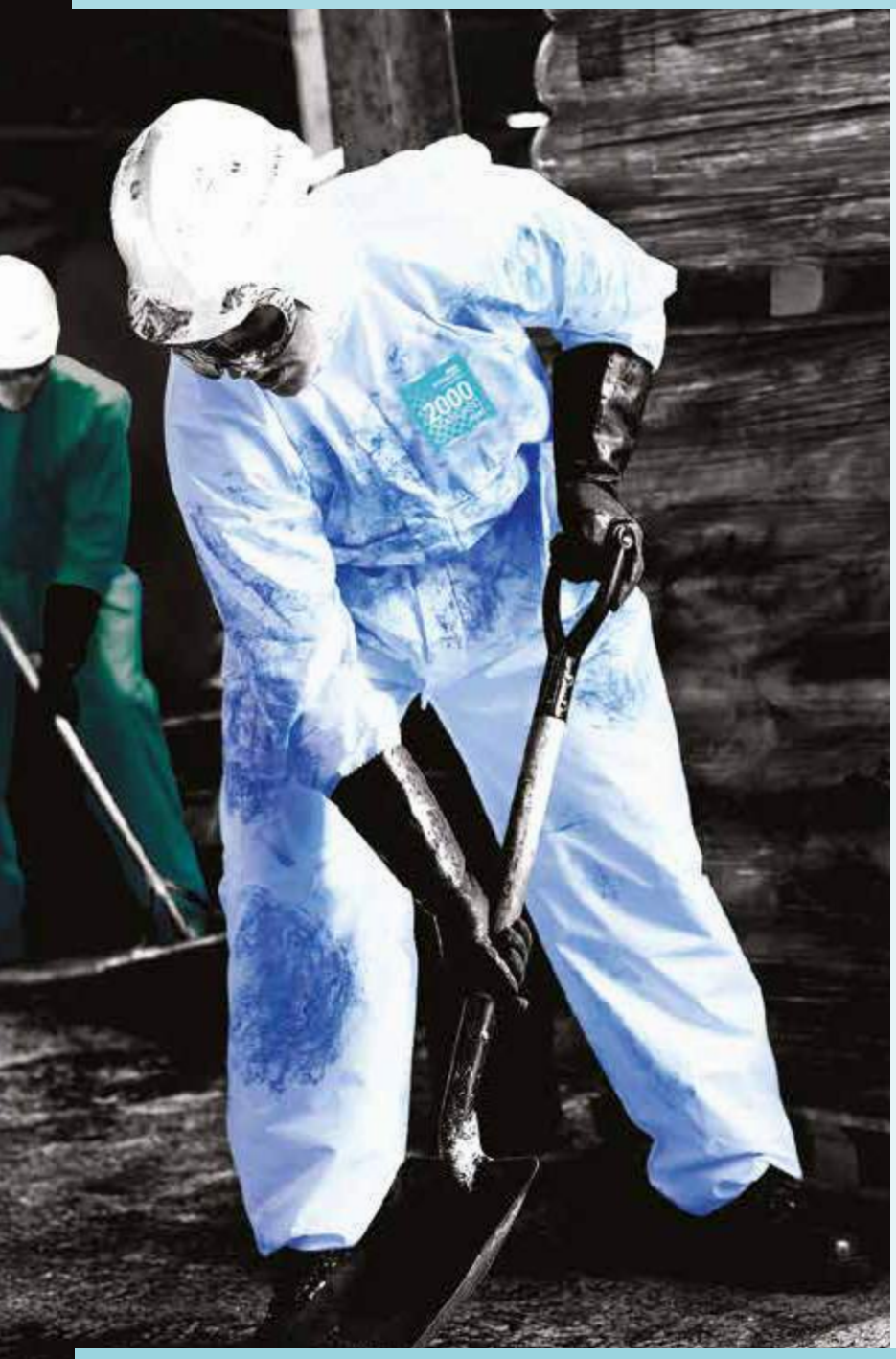
* IBE - ignited but extinguished

** Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for model 111 coveralls. Result for other models may vary. Please contact the Ansell technical team for information on a specific model **customerserviceus@ansell.com**

Fabric Repellence & Penetration - Resistance to Liquid Chemicals	Result (%)	EN Class
Repellence of Liquids - 30% Sulphuric Acid	>95	3 of 3
Repellence of Liquids - 10% Sodium Hydroxide	>95	3 of 3
Repellence of Liquids - o-Xylene	>90	2 of 3
Repellence of Liquids - Butan-1-ol	>95	3 of 3
Resistance to penetration by liquids - 30% Sulphuric Acid	< 1	3 of 3
Resistance to penetration by liquids - 10% Sodium Hydroxide	< 1	3 of 3
Resistance to penetration by liquids - o-Xylene	< 1	3 of 3
Resistance to penetration by liquids - Butan-1-ol	< 1	3 of 3

EN ISO 6529:2001 Chemical Permeation Barrier			
Chemical	**CAS Number**	**EN Class**	**EN Class (EN 14325:2004)**
Doxorubicin HCl	23214-92-8	>480	6 of 6

MICROCHEM® by AlphaTec® 2000



Features & Benefits

Protection - Excellent liquid penetration resistance and barrier to fine particulates (>0.01 microns*) including ASTM F1761 and EN 14126:2003 resistance to penetration of blood, body fluids and blood-borne pathogens.

Comfort - Moisture vapor permeable ("breathable") to help reduce the risk of heat stress

Silicone free - Critical in paint spraying applications

Low linting - Reduces the risk of fiber contamination in some critical areas

Optimized body fit - Improves wearer comfort and safety

Anti-static - Tested according to EN 1149-5 and AATCC 76

*EMSL test method

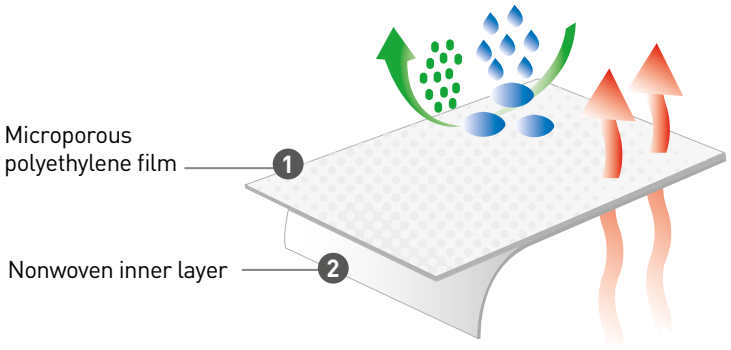
Applications

- Pharmaceutical industries
- Agriculture
- Cleanrooms
- Paint spraying
- Crime scene investigation
- Veterinary services
- Food

MICROCHEM® by AlphaTec® 2000 provides both protection and comfort with exceptional liquid and particulate protection. Ideal for a wide range of industrial applications.

The 68-2000 range is designed to allow water vapor (perspiration) to escape from the suit yet will withstand saturation of liquid chemicals and filter 100% of particulates down to 0.01 microns in size*.

The use of a high quality two-way stretch microporous film provides an effective liquid and particle barrier combined with a high water vapor transmission rate from inside to outside.



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Innovative Design Features

Finger loops to prevent sleeve movement when working above your head

Hoods designed for optimum fit with respirators, particularly full face masks

2-way front zipper with DST (Double Sided Tape) storm flap

Specialist Approvals

68-2000 has passed a range of specialist test methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Suitable for Ex-Zones
See page 11

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

Range Overview

68-2000

Low hazard liquid chemical repellence, particle protection, protection from pesticides and barrier to biological agents. Spray tight and ultra low linting for critical environments.

▲ 68-2000 - See page 21

68-2000 COMFORT

Low hazard liquid chemical repellence and particle protection. Provides Type 5 & 6 protection for workers in warm environments

▲ 68-2000 COMFORT - See page 24

68-2000 Ts PLUS

Type 4 protection, 2000 performance. Serged & taped seams offer a higher level of protection from liquid chemical penetration.

▲ 68-2000 Ts PLUS - See page 26

68-2000 Technical Data

It is extensively tested according to North American, European and International standards for both physical and barrier performance. More information is available to download from our website **www.ansell.com**

Fabric Physical Properties	Test Method	Units	Results*
Tensile strength (MD)	ASTM D5034	lbs	19.0
Tensile strength (CD)			28.2
Tear resistance (MD)	ASTM D5733	lbs	7.9
Tear resistance (CD)			12.2
Burst strength	ASTM D3787	lbs	25
Puncture propagation tear resistance	ASTM D2582	N	21.0
Flame spread	16 CFR §1610	sec	IBE ***
		(class)	(1)
Surface resistance at RH 40% - Face	AATCC 76	Ohms	2.4×10^{9}
Surface resistance at RH 40% - Back			2.85×10^{9}
Surface resistance at RH 20% - Face			1.85×10^{11}
Surface resistance at RH 20% - Back			3.1×10^{11}
Whole suit inward leakage **	EN ISO 13982-2	%	1.827
Barrier Properties	**Test Method**	**Units**	**Results***
Fabric hydrohead (Resistance to water penetration)	ISO 20811	cm H_2O	>200
Fabric Particle filtration efficiency (>0.01μm particle size)	JSTIIF EMSL Ultrasonic	% filtered	100
Comfort Properties	**Test Method**	**Units**	**Results***
Thermal resistance	ISO 11092	R_{ct}	16.3×10^{-3}
Water vapor resistance		R_{et}	<15
Water vapor transmission rate	ASTM E96, Method B	g/m² / 24hr	897

* Unless specified the test data is applicable to the white version only. For test results on other colors please contact **customerserviceus@ansell.com**

** Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for model 111 coveralls. Result for other models may vary. Please contact the Ansell technical team for information on a specific model at **customerserviceus@ansell.com**

*** Ignited but extinguished

The following tables provide examples of the 68-2000 resistance to chemical penetration and permeation. For complete up to the minute test data visit **www.ansell.com**

Chemical Permeation Test Data					
Chemical	**CAS Number**	**Test Method**	**Units**	**Results***	
				BT at (mins) 0.1 µg/cm²/min*	**BT at (mins) 1.0 µg/cm²/min***
Glycerol	56-81-5	ISO 6529		-	>480
PCB (KC 1000)	-	ISO 6529		>480	>480
1,2,4 Trichlorobenzene	120-82-1	ISO 6529		25	140
Isopropanol	67-63-0	ISO 6530	% pen.	0	
Sodium Hydroxide, 10%	1310-73-2	ISO 6530	% pen.	0	
Sodium Hydroxide, 30%	1310-73-2	ISO 13994: 2005 Procedure D	kPa	>14	
Sodium Hypochlorite, 5%	7681-52-9	ASTM F903	mins	>60	
Sulfuric Acid, 96%	7664-93-9	ISO 13994: 2005 Procedure D	kPa	>14	
Methanol	67-56-1	ISO 13994: 2005 Procedure D	kPa	10.5	

The 68-2000 test data for resistance to penetration of infective agents and blood borne pathogens is detailed in the table below.
For advice on the selection of protective apparel see page 9.

Property	Test Method	Result*	EN Class
Resistance to penetration by blood borne pathogens	ISO 16604	Pass to 20 kPa	Class 6 of 6
Resistance to penetration by blood borne pathogens	ASTM F1671	Pass	-
Resistance to wet bacterial penetration (mechanical contact)	ISO 22610	No penetration (up to 75 min)	Class 6 of 6
Resistance to biologically contaminated aerosols	ISO/DIS 22611	No penetration	Class 3 of 3
Resistance to dry microbial penetration	ISO 22612	No penetration	Class 3 of 3

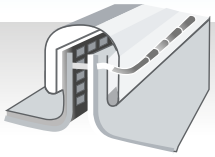
See back page for important warnings regarding the limitations of chemical testing.

Style 68-2000

Protection Levels & Additional Properties

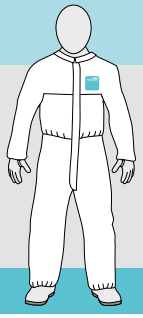
TYPE 5-B | TYPE 6-B | EN 14126 ASTM F1671 | DIN 32781 | EN 1073-2 | EN 1149-5 AATCC 76

Bound Seams
Superior strength, liquid and particle barrier



Applications
- Pharmaceutical industries
- Agriculture
- Cleanrooms
- Paint spraying
- Crime scene investigation
- Veterinary services
- Food

Model 103

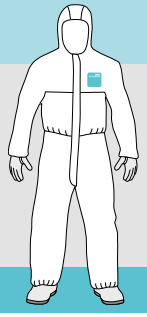


Suit Features
- Collar (no hood)
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Elasticated wrists, waist and ankles

Sizes: S-5XL (02-09) **Case Qty:** 25
Colors: White ◯ Green ● Yellow ●

CATALOG #: **WH20-B-92-103**

Model 111

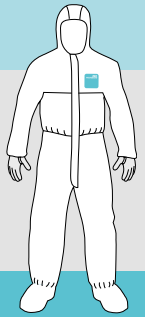


Suit Features
- 3 piece hood
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Elasticated hood, wrists, waist and ankles

Sizes: S-5XL (02-09) **Case Qty:** 25
Colors: White ◯ Green ● Yellow ●

CATALOG #: **WH20-B-92-111**

Model 107

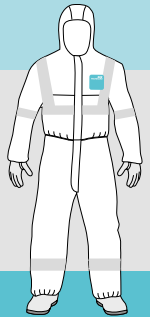


Suit Features
- 3 piece hood
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Elasticated hood, wrists, waist and ankles
- Attached anti-skid boots (Sure Step sole)

Sizes: S-5XL (02-09) **Case Qty:** 25 **Color:** White ◯

CATALOG #: **WH120-B-92-107**

Model 113

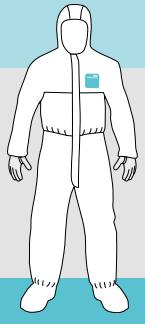


Suit Features
- 3-piece hood
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Elasticated hood, waist, wrists & ankles
- Silver reflective Hi-Vis tape

Sizes: S-5XL (02-09) **Case Qty:** 25 **Color:** White ◯

CATALOG #: **WH20-B-92-113**

Model 147

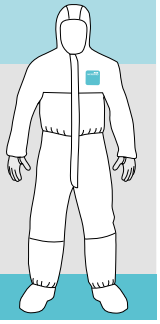


Suit Features
- 3-piece hood
- Elasticated hood, waist, wrists & ankles
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Attached socks

Sizes: S-5XL (02-09) **Case Qty:** 25
Colors: White ◯ Yellow ●

CATALOG #: **WH20-B-92-147**

Model 156

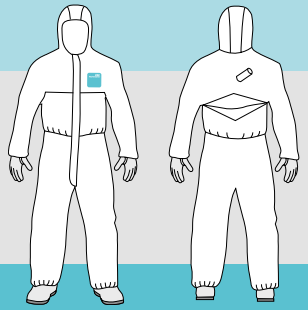


Suit Features
- 3-piece hood
- Elasticated hood, waist, wrists, ankles & overflaps
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Attached socks with boot overflaps

Sizes: S-5XL (02-09) **Case Qty:** 25
Colors: White ◯ Yellow ●

CATALOG #: **WH20-B-92-156**

Model 162



Suit Features
- 3 piece hood
- 2-way front zipper with re-sealable storm flap
- Finger loops
- Elasticated hood, wrists, waist and ankles
- Pass-thru device for use with fall arrest equipment

Sizes: S-5XL (02-09) **Case Qty:** 25
Colors: White ◯

CATALOG #: **WH20-B-92-162**

MICROCHEM® by AlphaTec® 2000 COMFORT

MICROCHEM® by AlphaTec® 2000 COMFORT has been specifically designed for those working in warmer climates or warm working environments to help reduce the risk of heat stress.

The critical areas to the front of the garment (including the hood, arms and legs) are 2000 fabric offering a high level of liquid and particle protection with a low level of water vapor resistance. Water vapor resistance according to EN 31092 of R_{et} <15*

The back panel is 1500 PLUS fabric which is air and water vapor permeable. This panel allows airflow around the suit, increasing wearer comfort. Air permeability result according to EN ISO 9237 of 160 L/m^2·s

Bound seams ensure spray tight protection to the front of the garment and excellent overall particle protection.

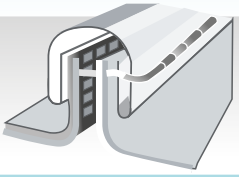
* R_{et} is a measurement of a materials resistance to moisture vapor transfer. The lower the value the less resistance there is and therefore the more breathable the fabric.

68-2000 COMFORT Coverall

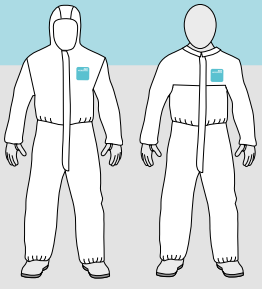
Protection Levels & Additional Properties

Bound Seams

Superior strength, liquid and particle barrier compared to serged seams



Model 129 & 177


(Model 129) (Model 177)

Features & Benefits:

- **Protection** - Hood, arms, legs and front torso in 2000 fabric
- **Comfort** - Air and water vapor permeable ("breathable") to help reduce the risk of heat stress
- **Silicone free** - Critical in spray painting applications
- **Anti-static** - Tested according to EN 1149-5 and AATCC 76
- 3 piece hood (model 129)
- Elasticated hood, wrists, waist and ankles
- 2-way front zipper with re-sealable storm flap
- Breathable SMS back panel

Sizes: S-5XL (02-09) **Case Qty:** 25
Color: White


3 Piece Hood


Finger Loops

Breathable SMS back panel

CATALOG #: **WH20-B-92-129 | WH20-B-92-177**

Applications

- Pharmaceutical industry
- Cleanrooms
- Paint spraying
- Veterinary services
- Pest control

MICROCHEM® by AlphaTec® 2000 SOCO

Developed specifically for police forensic Scene of Crime Officers (SOCOs), the **2000 SOCO** suit will provide you with the essential balance of comfort and performance.

Working closely with Greater Manchester Police (UK) SOCOs the coverall and overboots* were designed to fit both male and female officers and is available in a range of sizes.

This ensures that you can get on with the job without worrying about the performance or comfort of your protective apparel. (*sold separately, see page 37)

68-2000 SOCO Coverall

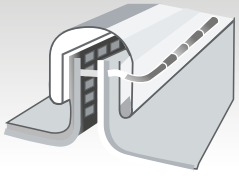
Protection Levels & Additional Properties

TYPE 5-B | TYPE 6-B | EN 14126 ASTM F1671 | EN 1073-2 | DIN 32781 | EN 1149-5 AATCC 76

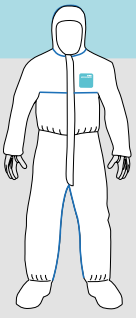
Bound Seams

Superior strength, liquid and particle barrier compared to serged seams

(Also available with serged and taped seams for Type 4 spray-tight applications)



Model **128**



Please note: footwear is sold separately

Features & Benefits:

- **Ultra low linting** - Reduces the risk of crime scene contamination
- **Self adhesive pockets** - Can be positioned anywhere on the garment to secure equipment
- **Finger loops** - To prevent sleeve movement when working above your head
- **Protection** - From biological agents in the highest performance class according to EN14126a
- **Anti-static** - Tested according to EN 1149-5 and AATCC 76
- Elasticated hood, wrists, waist and ankles
- 2-way front zipper with re-sealable storm flap
- 2 piece hood
- Chin strap
- Dual finger loops
- Supplied with 2 pockets

Sizes: S-5XL (02-09) **Case Qty:** 25

Color: White

Pocket

Color coded seam

Chinstrap

CATALOG #: **WH20-B-92-128**

Applications

- Forensics
- Scene of Crime Officers (SOCOs)
- Crime Scene Investigation (CSI)

MICROCHEM® by AlphaTec® 2000 Ts PLUS

The **2000 Ts PLUS** is now the product of choice for many pharmaceutical workers around the world.

It is designed to allow water vapor (perspiration) to escape from the suit yet will withstand saturation of liquid chemicals and filter 100% of particulates down to 0.01 microns in size*.

With serged and taped seams, the 2000 Ts PLUS provides an exceptional overall barrier to low hazard liquid spray and fine particulates.

*EMSL test method

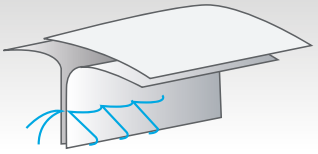
68-2000 Ts PLUS Coveralls

Protection Levels & Additional Properties

TYPE 4-B | TYPE 5-B | TYPE 6-B | EN 14126 ASTM F1671 | EN 1073-2 | DIN 32781 | EN 1149-5 AATCC 76

Serged & Taped Seams

Internal stitching which is overtaped to offer increased strength and an effective barrier to liquids and particulates.

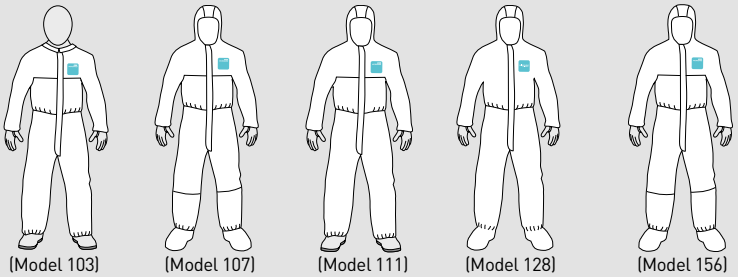


Features and benefits

- **Protection** - Proven barrier to low concentration liquid chemicals, diluted pesticides, liquid & particulate biological hazards
- **Comfort** - Moisture vapor permeable ('breathable') to help reduce the risk of heat stress
- **Silicone free** – Critical in spray painting applications
- **Low linting** – Reduced risk of contamination in critical areas
- **Anti-static** – Tested according to EN 1149-5 and AATCC 76
- **Optimized body fit** – Improves wearer comfort and safety
- **Tunnelled elasticated wrists, hood and ankles** – helps to minimise the risk of linting and cross contamination
- **Thumb loops** – help to prevent sleeve movement when working above your head
- **Chinstrap** – helps to reduce the risk of cross contamination

Sizes: S-5XL (02-09) **Case Qty:** 25 pcs/case
Color: White

Available in the following models:
103, 111, 107 (includes Sure Step boots)**, 128 & 156**



(Model 103) (Model 107) (Model 111) (Model 128) (Model 156)

CATALOG #: **WH20-T-92-103 | WH20-T-92-107 | WH20-T-92-111 | WH20-T-92-128 | WH20-T-92-156**

Applications

- Pharmaceutical industries and life sciences
- Agriculture
- Paint spraying
- Fiberglass product manufacturing
- Boat and ship building
- Mining

MICROCHEM® by AlphaTec® 2000 Accessories

Style 68-2000 Accessories

Model 209

Lab Coat
- Front zip fastening
- Left breast pocket
- Lower right pocket
- Bound seams

Sizes: S-5XL **Case Qty:** 30
Color: White

CATALOG #: **WH20-B-92-209**

Model 301

Pants
- Elastication to waist and ankles
- Bound seams

Sizes: S-5XL
Case Qty: 50
Color: White

CATALOG #: **WH20-B-92-301**

Model 503

Hood
- Balaclava style
- Elasticated face opening
- Bound seams

Sizes: One size
Case Qty: 300
Color: White

CATALOG #: **WH20-B-92-503-00**

Model 232 & 233

Apron
- Tie fastening to waist
- 39" long tie fastening

Sizes: Model 232: 28" x 36"
Model 233: 28" x 44"
Case Qty: 100
Color: White

CATALOG #: **WH20-S-92-232 / 233-00**

Model 400 & 401

Overshoes
- Elasticated opening
- Bound seams

Sizes: Model 400: 8-12
Model 401: 12-14
Case Qty: 200 pairs
Color: White

CATALOG #: **WH20-B-92-400 / 401-00**

Model 219

Jacket & Pant Set
- Zip fastening jacket
- Elasticated hood and hem on jacket
- Elasticated waist & ankles on trousers
- Bound seams

Sizes: S-5XL **Case Qty:** 25
Color: White

CATALOG #: **WH20-B-92-219**

Model 214

Isolation Gown
- Rear velcro fastening
- Elasticated wrists
- Bound seams

Sizes: S-5XL
Case Qty: 50
Color: White

CATALOG #: **WH20-B-92-214**

Model 417

Overshoes
- Elasticated opening
- PVC anti-slip sole
- Bound seams

Sizes: Model 417-00:8-12
Model 417-05:12-14
Case Qty: 250 pairs (size 00)
200 pairs (size 05)
Color: White

CATALOG #: **WH20-B-92-417-00 / 417-05**

Model 226

Hooded Jacket only
- Zip fastening jacket
- Elasticated hood and hem on jacket
- Bound seams

Sizes: S-5XL
Case Qty: 25
Color: White

CATALOG #: **WH20-B-92-226**

Model 507

Cape Hood
- Balaclava style cape hood covering part of shoulders
- Velcro fastening to front
- Bound seams

Sizes: One size
Case Qty: 250
Color: White

CATALOG #: **WH20-B-92-507-00**

Model 406 & 407

Overboots
- Tie fastening
- Elastic to top of boot
- Bound seams

Size: 8 - 12
Case Qty: 200 pairs (406)
150 pairs (407)
Color: White
Model 407 with PVC anti-slip sole also available to order

CATALOG #: **WH20-B-92-406 / 407**

Model 600

Oversleeves
- Elasticated at both ends
- Length 20"
- Bound seams

Size: One Size
Case Qty: 100 pairs
Color: White

CATALOG #: **WH20-B-92-600-00**

For more information on our range of accessories, or if you can't see the accessory you are looking for, please contact Ansell Customer Service **customerserviceus@ansell.com** or visit **www.ansell.com**

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

MICROCHEM® by AlphaTec® 2000 Protection from Pesticides

Almost on a daily basis, farm workers are exposed to various chemical and biological hazards. Depending on the level and duration of exposure (and specific effects for these hazards) they may be required to wear Personal Protective Equipment (PPE). The PPE required may include respirators, gloves and chemical protective apparel.

DIN 32781 defines the performance criteria for chemical protective apparel to be worn during the handling and application (spraying etc.) of diluted mixtures of pesticides. During spray testing of 2000 against the 5 pesticides listed in this standard no penetration was detected.

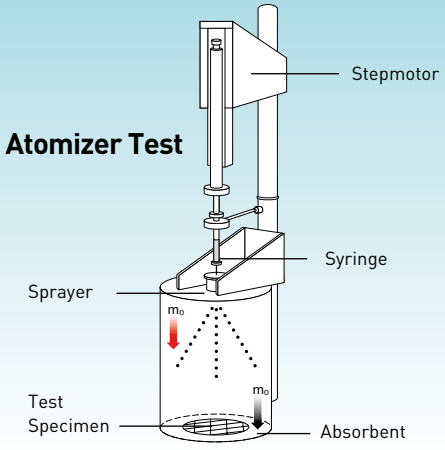
Typical applications where agriculture workers are exposed to chemicals

- Mixing and loading the undiluted concentrate
- Spraying the highly diluted mixture
- Exposure at work place to a fine aerosol caused by drift
- Exposure by intensive contact with treated foliage

▲ 68-2000 - See page 21

▲ 68-2000 SOCO - See page 23

▲ 68-2000 Ts PLUS - See page 24



EN14786:2006 Protective Apparel.

Determination of resistance to penetration by sprayed liquid chemicals,emulsions and dispersions. Atomizer test EN14786 specifies a test method to determine the resistance of textile materials against penetration by atomized liquid chemicals, emulsions and dispersions.

These materials are intended to be used in both limited-use and reusable protective apparel. The penetration is expressed in percent, as a ratio of the amounts of chemical applied and retained by the textile.

Key elements of DIN 32781	68-2000 & 68-2000 Ts PLUS Performance
The material shall not cause irritation of skin or other hazards to health	Full compliance with EN 340:2003 (Protective Apparel; General Requirements)
Tear Strength min 10 N	MD 40.7 N, CD 18.6 N (Average 29.7 N)
Tensile Strength min 30 N in both directions	MD 48.3 N, CD 108.1 N
Penetration Index less than or equal to 5% for one of the chemicals specified - Atomiser test according to EN 14786:2006	0% Penetration detected with all 5 chemicals tested
Ergonomic Aspects – Water Vapor resistance according to EN 31092	Tested by EMPA and R_{et} recorded as ‹15
Resistance of penetration of liquids. Testing according to EN 13034:2005	Certified to EN 13034:2005 (Type 6)
Seam Strength min of 30 N	>75 N

DIN 32781 Test Chemicals - EN 14786 Atomiser Test 68-2000 Performance

Brand name & ZA-Nr.	Manufacturer	Test Result (% Penetration)
U46-D-Fluid 0941-00	BASF	None Detected
Pirimor Granulat 2470-00	Syngenta	None Detected
Amistar 5090-00	Syngenta	None Detected
Betanal Expert 4991-00	Bayer CropScience	None Detected
Folicur 4028-00	Bayer CropScience	None Detected

Cleanroom protective apparel

A key function of cleanroom apparel is to serve as a barrier protecting both the product and process from airborne contamination. Particulates can enter by air, foot or any carrier between the external environment and the cleanroom. Contamination poses a significant risk to technical processes as well as to the individual.

Uncontrolled contamination can quickly lead to product damage, yield reduction and potentially product recalls. Specification and use of an appropriate apparel system is essential in limiting human-generated contamination from reaching and affecting products or processes in the cleanroom.

When choosing a garment for the cleanroom environment you need to consider the following:

- **Wearer protection**
  - Suitable protective barrier to liquids or particulates
- **Wearer comfort**
  - Garment breathability
- **Product protection**
  - Low linting
  - Good particle barrier (inside out)
- **Electrostatic dissipation**
  - EN 1149 Protective apparel with electrostatic properties

Wearer Protection

Particle Barrier – EN ISO 13982-1:2004 (Type 5)
The ability of the whole cleanroom garment, not just the fabric, to protect the wearer against airborne particulates is a critical measure of the protective performance of cleanroom protective apparel.

Refer to the product pages for Ansell particle inward leakage & test data or visit www.ansell.com.

Wearer Comfort

Ensuring an acceptable level of comfort for a cleanroom operator is essential to reduce the risk of heat stress and maintain productivity levels. Ansell coveralls offer an excellent balance of protection and comfort. 1500 PLUS and 2000 have a low water vapor resistance, which allows moisture vapor (perspiration) to evaporate.

Product Protection

Fiber release from apparel materials (linting) can be a potential source of cleanroom contamination. The Helmke Drum test is described in IEST recommended practice CC003.3. The product under test is tumbled in a rotating drum to release particles from the surface garment in a controlled manner. An automatic particle counter is used to sample the air within the drum to determine the average particle concentration of the air during the ten minutes of the test. The average value of the particle concentrations detailed in the table below is used to calculate a "cleanliness" classification for the tested garments.

Cleanroom protective apparel

2000 coveralls have been subjected to testing relevant to cleanroom clothing performance including ISO 9073-10 (control of linting of textiles), EN 13982-2 for inward leakage of particulates and a series of fabric filtration tests. With the information from these results and other relevant data it is possible for us to offer guidance on the suitability of 2000 by cleanroom class. However, suitability is also dependent on the cleanroom conditions and model features.

For advice please contact the Ansell technical team

MICROCHEM® by AlphaTec® range suitability by cleanroom class

ISO 14644-1 Class	5	6	7	8	9
US Federal Standard 209E	100	1,000	10,000	100,000	
MICROCHEM® by AlphaTec® 1500 PLUS			✓	✓	✓
MICROCHEM® by AlphaTec® 2000 STANDARD		✓	✓	✓	✓
MICROCHEM® by AlphaTec® 2000 Ts PLUS		✓	✓	✓	✓

Electrostatic Dissipation (ESD)

All cleanroom apparel should be electrically conductive to minimise the build-up of electrical charges.

An ESD protective material attracts less particulate contamination and minimises the risk of potential damage to electrical equipment.

Protective Apparel with electrostatic properties***

Chemical Protective Apparel in Ex-Zones

*** Always ensure the garment and wearer are properly grounded

Cleanroom Classification

There are several standardised tests generating data on the barrier and particle shedding properties of fabrics and garments, however, there is no standard that defines a clear correlation between clean room classes and what performance classes or categories are to be met by cleanroom protective apparel.

The particle emission and barrier properties of 1500 PLUS & 2000 apparel has therefore been rigorously assessed according to several recognised, cleanroom relevant test methods for both cleanliness and barrier performance. With the information gathered from this testing it is possible for us to offer guidance on the suitability of the 1500 PLUS & 2000 apparel ranges. However, suitability for your cleanroom is always dependent on the specific cleanroom conditions.

MICROCHEM® by AlphaTec® 2300

Features & Benefits

Protection - A barrier to numerous inorganic liquid chemicals including acids and bases and achieves the highest classifications for protection from biological agents in accordance with EN 14126:2003 and ASTM F 1671 for penetration of blood, body fluids and blood-borne pathogens

Comfort - Lightweight yet strong and durable

Anti-static - Tested according to EN 1149-5 and AATCC 76

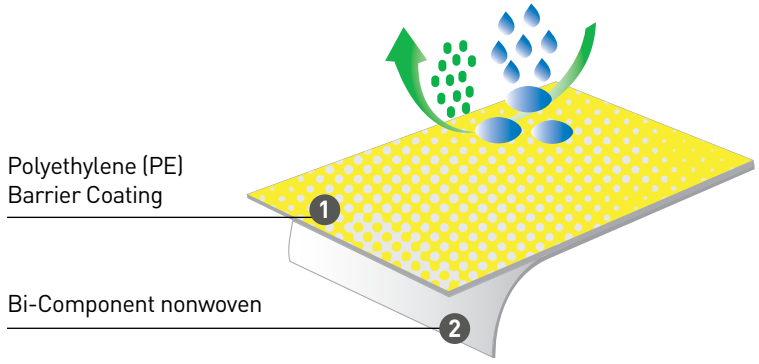
Designed to protect - Typical coverall features include respirator fit hood and a zip flap with self-adhesive tape closure

Applications

- Environmental clean-up
- Sewage purification installations
- Composites manufacturing

MICROCHEM® by AlphaTec® 2300 provides an excellent barrier to harmful chemicals and blood borne pathogens, while being lightweight and relatively strong and durable.

The 68-2300 fabric is comprised of a polyethylene (PE) barrier coating with a bi-component nonwoven inner layer. The combination of which provides an excellent barrier to many harmful chemicals, while being lightweight and yet relatively strong and durable.

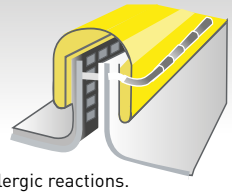


Protection Levels & Additional Properties

TYPE 5-B | TYPE 6-B | EN 1073-2 | EN 14126 ASTM F1671 | EN 1149-5 AATCC 76

Bound Seams

Superior strength, liquid and particle barrier



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Innovative Design Features

Finger loops to prevent sleeve movement when working above your head

Hoods designed for optimum fit with respirators, particularly full face masks

2-way front zipper with DST (Double Sided Tape) storm flap

Specialist Approvals

68-2300 has passed a range of specialist test methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

Range Overview

68-2300

Low hazard liquid chemical repellence, particle protection and barrier to biological agents.

▲ 68-2300

68-2300 COMFORT

Low hazard liquid chemical repellence and particle protection. Provides Type 5 & 6 protection for workers involved in composites manufacturing and related industries.

▲ 68-2300 COMFORT - See page 34

68-2300 PLUS

Type 3 protection, MICROGARD® by AlphaTec™ 2300 performance. Stitched and taped seams offer a higher level of protection from liquid chemical penetration.

▲ 68-2300 PLUS - See page 35

MICROCHEM® by AlphaTec® 2300

68-2300 Technical Data

The 68-2300 fabric 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.

Fabric Physical Properties	Test Method	Units	Results White	Results Yellow
Tensile strength (MD)	ASTM D5034	lbs-f	35	31
Tensile strength (CD)			28	24
Tear resistance (MD)	ASTM D5733	lbs-f	14.1	7.8
Tear resistance (CD)			7.8	6.3
Burst strength	ASTM D3787	lbs-f	35	28
Puncture propagation tear resistance (MD)	ASTM D2582	N	22.6	23.8
Puncture propagation tear resistance (CD)			23.8	22.2
Flame spread	16 CFR §1610	sec	DNI	DNI
		(class)	(1)	(1)
Hydrostatic resistance	AATCC 127	cm	>127	>127
Viral penetration resistance	ASTM F1671	Pass/Fail	Pass	Pass
Surface Resistivity (at 70°F and 40% R.H.)				
Fabric outer surface	AATCC 76	ohms/ square	7.34×10^{8}	1.37×10^{9}
Fabric inner surface			1.03×10^{8}	9.38×10^{7}
Surface Resistivity (at 70°F and 20% R.H.)				
Fabric outer surface	AATCC 76	ohms/ square	2.76×10^{10}	8.44×10^{9}
Fabric inner surface			4.08×10^{8}	3.49×10^{8}
Barrier Properties	**Test Method**	**Units**	**Results White**	**Results Yellow**
Whole suit particle inward leakage* **(COMFORT)**	ISO 13982-2	% TIL	4.211%	-
Whole suit particle inward leakage*			-	1.973%
Comfort Properties	**Test Method**	**Units**	**Results White**	**Results Yellow**
Thermal Resistance	ISO 11092	$M^2.K/W$	14.8×10^{-3}	17.4×10^{-3}

* Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for model 111 coveralls. Result for other models may vary. Please contact the Ansell technical team for information on a specific model **customerserviceus@ansell.com**

*For an up to date list of chemicals tested please visit www.ansell.com or email the Ansell Technical Team at customerserviceus@ansell.com.

The following table sets out 68-2300 performance for resistance to chemical permeation in accordance with ASTM 739.

ASTM F739 Chemical Permeation Test Data				
Chemical	**CAS Number**	**Phase**	**Normalized breakthrough time (mins)**	**Permeation Rate at 480 mins (µg/cm²/min)**
Cresol (mixed isomers) (>99 % w/w)	1319-77-3	L	>480	<0.1
Ferric Chloride (sat)	7705-08-0	L	>480	<0.1
Ferrous Chloride (sat)	7759-94-3	L	>480	<0.1
Formalin (10% w/w)	50-00-0	L	>480	<0.1
Hexamethylene diisocyanate	822-06-0	L	42	0.32
Hydrofluoric acid (48-51 % w/w)	7664-39-3	L	227	0.32
Mercury	7439-97-6	L	>480	<0.1
Potassium Permanganate (sat)	7722-64-7	L	>480	<0.1
Sodium Hydroxide (50 % w/w)	1310-72-2	L	>480	<0.1
Sodium Hypochlorite (14 % available chlorine)	7681-52-9	L	>480	<0.1
Sulfuric Acid (96% w/w)	7664-93-9	L	>480	<0.1

Permeation data obtained per ASTM F739. Normalized breakthrough times (the time at which the permeation rate is equal to 0.1 µg/cm²/min) reported in minutes. All liquid chemicals have been tested between approximately 20°C and 27°C unless otherwise stated.

See back page for important warnings regarding the limitations of chemical testing.

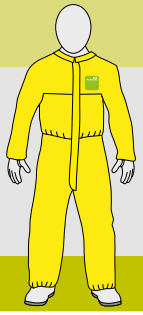
MICROCHEM® by AlphaTec® 2300

Style 68-2300

Model 103

Suit Features
- Collar (no hood)
- 2-way front zipper with DST storm flap
- Finger loops
- Elasticated waist, wrists & ankles

Sizes: S-5XL (02-09)
Case Qty: 25
Color: Yellow

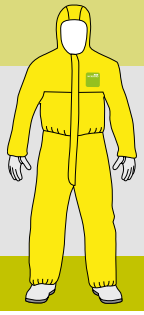


CATALOG #: **YY23-B-92-103**

Model 111

Suit Features
- 3-piece hood
- 2-way front zipper with DST storm flap
- Finger loops
- Elasticated hood, waist, wrists & ankles

Sizes: S-5XL (02-09)
Case Qty: 25
Color: Yellow

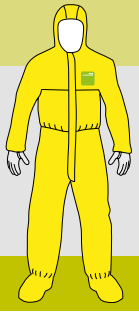


CATALOG #: **YY23-B-92-111**

Model 147

Suit Features
- 3-piece hood
- 2-way front zipper with DST storm flap
- Finger loops
- Elasticated hood, waist & wrists & ankles
- Attached socks

Sizes: S-5XL (02-09)
Case Qty: 25
Color: Yellow



CATALOG #: **YY23-B-92-147**

Model 214

Isolation Gown
- Rear velcro fastening
- Elasticated wrists
- Bound seams

Sizes: S-5XL (02-09)
Case Qty: 50
Color: Yellow

CATALOG #: **YY23-B-92-214**

Model 232

Apron
- Tie fastening to waist
- 39" long tie fastening

Sizes:
Model 232: 28" x 36"
Case Qty: 100
Color: Yellow

CATALOG #: **YY23-B-92-232-00**

Model 600

Oversleeves
- Elasticated at both ends
- Length 20"
- Bound seams

Sizes: One size
Case Qty: 100 pairs
Color: Yellow

CATALOG #: **YY23-B-92-214-00**

MICROCHEM® by AlphaTec® 2300 COMFORT

The **2300 COMFORT** has been engineered with workers involved in composites manufacturing and related industries in mind, to offer protection where you need it most and ventilation to help reduce the risk of heat stress.

The critical areas to the front of the garment (including the hood, arms and legs) are 2300 fabric; offering an excellent barrier to resins, fibers and many other hazards associated with composites manufacturing. The construction of the fabric ensures that there is no risk of delamination, and subsequent contamination of the composite, should a wearer make contact with a tacky surface.

The back panel is 68-1500 PLUS fabric which is air and water vapor permeable whilst providing a good barrier to fibers and particulates. This panel allows airflow around the suit, increasing wearer comfort. Air permeability result according to EN ISO 9237 of 160 L/m^2·s

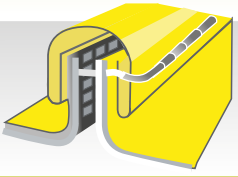
68-2300 COMFORT Coverall

Protection Levels & Additional Properties

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5 AATCC 76

Bound Seams

Superior strength, liquid and particle barrier



Model **129**

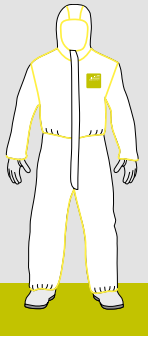
Features & Benefits:

- **Protection** - Hood, arms, legs and front torso in 2300 fabric, which is an excellent barrier to resins and fibers
- **Innovation** - Fabric construction ensures that there is no risk of delamination should a wearer make contact with a tacky surface
- **Comfort** - Air and water vapor permeable ("breathable") back panel ventilates the suit, to help reduce the risk of heat stress
- **Silicone free** - Critical in spray painting applications
- **Anti-static** - Tested according to EN 1149-5 and AATCC 76
- 3-piece hood – ensures a good fit with half & full face respirators
- Elasticated hood, wrists, waist and ankles
- Finger loops, prevent sleeve movement whilst working above your head
- 2-way front zipper with DST storm flap
- Breathable SMS back panel

Sizes: S-5XL (02-09)
Case Qty: 25
Color: White

3-piece hood

Finger Loops



CATALOG #: **WY23-B-92-129**

Applications

- Composites manufacturing
- Pharmaceutical industry
- General maintenance

Breathable SMS back panel

MICROCHEM® by AlphaTec® 2300 PLUS

MICROCHEM® by AlphaTec® 2300 PLUS is an entry level Type 3 chemical and biological protective coverall for workers involved in environmental clean-up, general industrial and chemical handling applications.

68-2300 fabric is comprised of a polyethylene (PE) barrier coating with a bi-component nonwoven inner layer, the combination of which provides an excellent barrier to many harmful chemicals while being lightweight and yet relatively strong and durable.

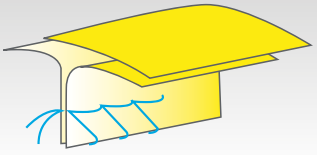
68-2300 PLUS Coverall

Protection Levels & Additional Properties

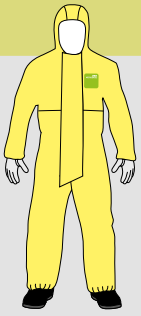
TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 1073-2 | EN 14126 ASTM F1671 | EN 1149-5 AATCC 76

Serged & Taped Seams

Internal stitching which is overtaped to offer increased strength and an effective barrier to liquids and particulates.



Model **132**



Features & Benefits:

- **Protection** - Polycoated bi-component barrier resists permeation of numerous liquid chemicals
- **Highly visible** - Bright yellow for improved worker safety
- **Comfort** - Lightweight yet relatively strong and durable
- **Anti-static** - Tested according to EN 1149-5 and AATCC 76
- **Designed to protect** - Typical coverall features include respirator fit hood and a zip flap with self-adhesive tape closure
- 3-piece hood
- Elasticated hood, wrists, waist and ankles
- 2-way front zipper with resealable storm flap
- Finger loops

Sizes: S-5XL (02-09)
Case Qty: 25
Colour: Yellow

3-piece hood

Finger Loops

2-way front zip

CATALOG #: **YY23-T-92-132**

Applications

- Environmental clean-up
- Sewage purification installations
- Industrial and Chemical manufacturing
- Industrial Cleaning

MICROCHEM® by AlphaTec® 2500

Features & Benefits

Protection - Achieves the highest classifications for protection from biological agents in accordance with EN 14126:2003 and ASTM F 1671 for penetration of blood, body fluids and blood-borne pathogens

Comfort - Moisture vapor permeable ("breathable") to help reduce the risk of heat stress

Anti-static - Tested according to EN 1149-5 and AATCC 76

Low linting - Reduced risk of contamination in critical areas

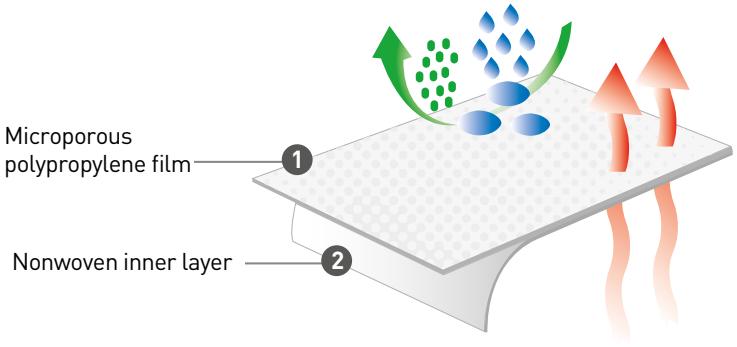
Applications

- Viral contaminated areas (including Avian Influenza)
- Biological protection
- Emergency medical response
- Medical research
- Chemical and pharmaceutical industries
- Low pressure industrial cleaning
- Industrial paint spraying
- Nuclear industry

MICROCHEM® by AlphaTec® 2500 is a unique material offering exceptional mechanical strength, liquid and particulate protection.

68-2500

68-2500 is a durable microporous polypropylene laminate which provides an excellent barrier to chemical spray and infective agents. This specialist fabric is also breathable to help ensure user comfort. The fabric's physical strength and flexibility ensures protection and comfort even in the harshest environments.



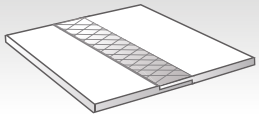
CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Protection Levels & Additional Properties

TYPE 4-B | TYPE 5-B | TYPE 6-B | EN 1073-2 | EN 1149-5 AATCC 76 | EN 14126 ASTM F1671

Ultrasonically Welded Seams

Provides a strong liquid and particle barrier



Innovative Design Features

Finger loops to prevent sleeve movement when working above your head

Hoods designed for optimum fit with respirators, particularly full face masks

Specialist Approvals

68-2500 has passed a range of specialist test methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

Range Overview

68-2500

Low concentration liquid chemical repellence, particle protection and barrier to biological agents.

▲ 68-2500

MICROCHEM® by AlphaTec® 2500

68-2500 Technical Data

68-2500 is extensively tested according to North American, European and International standards for both physical and barrier performance. More information is available to download from our website **www.ansell.com**

Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D5034	lbs	40.5
Tensile strength (CD)			35.5
Tear resistance (MD)	ASTM D5733	lbs	16.4
Tear resistance (CD)			11.7
Burst strength	ASTM D3787	lbs	76
Puncture propagation tear resistance	ASTM D2582	N	16.7
Flame spread	16 CFR §1610	sec	7.9
		(class)	(1)
Surface resistance at RH 25%	EN 1149-1	Ohms	$<2.5 \times 10^9$
Barrier Properties	**Test Method**	**Units**	**Results**
Fabric Hydrohead (Resistance to water penetration)	ISO 20811	cm H_2O	>200
Fabric Particle filtration efficiency (>0.01μm particle size)	EMSL Ultrasonic	% filtered	100
Whole suit particle inward leakage*	ISO 13982-2	% TIL	0.718
Whole suit particle inward leakage* **(PLUS PAPR)**			<0.005
Whole suit particle inward leakage* **(PLUS AIRline)**			<0.002
Comfort Properties	**Test Method**	**Units**	**Results**
Moisture vapor transmission	ASTM E96, Method B	g/m² x 24hr	804

* Whole suit particle inward leakage testing performed with self-adhesive tape sealing the full face respirator, gloves and boots to the coverall and additional tape applied over the zipper flap. Particle size range of 0.02-2 microns with a mass median of 0.6 microns. Data for Model 111 coveralls. Results for other models may vary. Please contact the Ansell technical team for information on a specific model **customerserviceus@ansell.com**

The following tables provide examples of 68-2500 resistance to chemical penetration and permeation.

Chemical Permeation Test Data					
Chemical	**CAS Number**	**Test Method**	**Units**	**Results***	
				BT at (mins) 0.1 µg/cm²/min*	**BT at (mins) 1.0 µg/cm²/min***
Sodium Hydroxide 10%	1310-73-2	ISO 6529		-	>480
n-heptane (undiluted)	142-82-5	ISO 6530	% pen.	0	
Isopropanol	67-63-0	ISO 6530	% pen.	0	
Sodium Hydroxide, 10%	1310-73-2	ISO 6530	% pen.	0	
Sulfuric Acid, 96%	7664-93-9	ISO 6530	% pen.	0	

68-2500 test data for resistance to penetration of infective agents and bloodborne pathogens is detailed in the table below.
For advice on the selection of protective apparel see page 9.

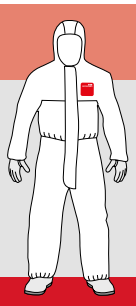
Property	Test Method	Result*	EN Class
Resistance to penetration by blood borne pathogens	ISO 16604	Pass to 20 kPa	Class 6 of 6
Resistance to penetration by blood borne pathogens	ASTM F1671	Pass	-
Resistance to wet bacterial penetration (mechanical contact)	ISO 22610	No penetration (up to 75 min)	Class 6 of 6
Resistance to biologically contaminated aerosols	ISO/DIS 22611	No penetration	Class 3 of 3
Resistance to dry microbial penetration	ISO 22612	No penetration	Class 3 of 3

See back page for important warnings regarding the limitations of chemical testing.

MICROCHEM® by AlphaTec® 2500

Style 68-2500 Coveralls & Accessories

Model 111

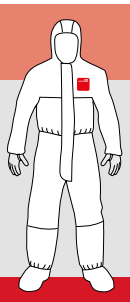


Suit Features
- 3-piece hood
- Elasticated hood, wrist, waist and ankles
- 2-way front zip with DST storm flap
- Finger loops

Sizes: S-5XL (02-09) **Case Qty:** 25 **Color:** White ◯

CATALOG #: **WH25-W-92-111**

Model 122



Suit Features
- 3-piece hood
- Elasticated hood, wrists and waist
- 2-way front zipper with DST storm flap
- Finger loops
- Integrated socks with boot overflap

Sizes: S-5XL (02-09) **Case Qty:** 25 **Color:** White ◯

CATALOG #: **WH25-W-92-122**

Model 203

Lab Coat
- Collar
- Stud front fastening
- Left breast pocket
- Lower right pocket
- Bound seams

Sizes: S-5XL (02-09)
Case Qty: 30
Color: White ◯

CATALOG #: **WH25-B-92-203**

Model 406

Overboots
- Elastic to top of boot
- Tie fastening
- Bound seams

Size: One size (fits size 8-12)
Case Qty: 200 pairs
Color: White ◯

CATALOG #: **WH25-B-92-406-00**

Model 503

Cape Hood
- Balaclava Style
- Elasticated face opening
- Bound seams

Size: One size
Case Qty: 200
Color: White ◯

CATALOG #: **WH25-B-92-503-00**

Model 213

Apron
- Tie fastening to waist
- 39" long tie fastening

Sizes: One size
Case Qty: 100
Color: White ◯

CATALOG #: **WH25-S-92-213-00**

Model 407

Overboots -ESD
- Elasticated opening
- PVC anti-slip sole
- Adjustable shoe tie
- Bound seams
- ESD PVC Sole

Size: 8-12
Case Qty: 150 pairs
Color: White ◯

CATALOG #: **WH25-B-92-407**

Model 507

Cape Hood
- Balaclava style cape hood covering part of shoulders
- Velcro fastening to front
- Bound seams

Size: One size
Case Qty: 200
Color: White ◯

CATALOG #: **WH25-B-92-507-00**

Model 400

Overshoes
- Elasticated opening
- Bound seams

Size: One size (fits size 8-12)
Case Qty: 200 pairs
Color: White ◯

CATALOG #: **WH25-B-92-400-00**

Model 409

SOCO Overboots
- Elastic to top of boot
- Tie fastening
- Blue binding to seams
- Reinforced Surestep non-slip soles
- Adjustable shoe tie

Size: One size (fits size 8-12)
Case Qty: 100 pairs
Color: White ◯

CATALOG #: **WH25-B-92-409-00**

Model 600

Oversleeves
- Elasticated at both ends
- Length 20"
- Bound seams

Size: One size
Case Qty: 100 pairs
Color: White ◯

CATALOG #: **WH25-B-92-600-00**

MICROCHEM® by AlphaTec® 3000

Features & Benefits

Protection - Multi-layer barrier fabric effective against numerous chemicals

Highly visible - Bright yellow for improved worker safety

Comfort - Lightweight yet durable

Anti-static - Tested according to EN 1149-5 and AATCC 76

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

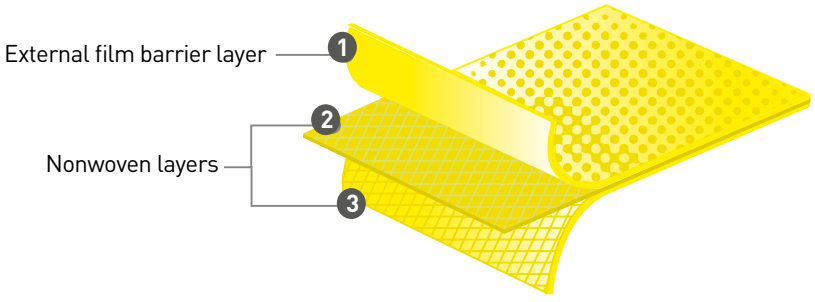
Applications

- Chemicals
- Oil and petrochemicals
- Pharmaceutical
- Food industry (caustic clean downs)
- Sewage purification installations
- Industrial and tank cleaning
- Mining

MICROCHEM® by AlphaTec® 3000 features one of the lightest and most comfortable chemical protective materials on the market today. This durable multi-layer fabric provides an extremely effective barrier against both inorganic chemicals and biological hazards.

68-3000

One of the lightest and most comfortable chemical protective garments on the market today this durable 3 layer fabric provides an extremely effective barrier against both inorganic chemicals and biological hazards.



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

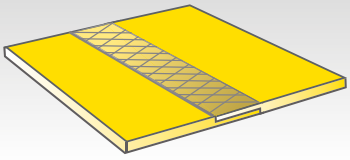
Protection Levels & Additional Properties

TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 14126 ASTM F1671 | EN 1073-2 | EN 1149-5 AATCC 76

Ultrasonically Welded Seams

Provides a strong liquid and particle barrier

(68-3000 PAPR features welded and taped seams)



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

68-3000 has passed a range of specialist testing methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Suitable for Ex-Zones
See page 11

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

Range Overview

68-3000

Protection against concentrated inorganic chemicals & biological agents.

▲ 68-3000

68-3000 PAPR

Encapsulated suit provides respiratory and full body protection.

▲ 68-3000 PAPR - See page 45

68-3000 AIRline

One piece suit designed for use in combination with belt mounted, continuous flow airline regulators.

▲ 68-3000 AIRline- See page 53

MICROCHEM® by AlphaTec® 3000

68-3000 Technical Data

68-3000 is extensively tested according to North American, European and International standards for both physical and barrier performance.

Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D5034	lbs	44.0
Tensile strength (CD)			30.9
Tear resistance (MD)	ASTM D5733	lbs	22.8
Tear resistance (CD)			9.2
Burst strength	ASTM D3787	lbs	135
Puncture propagation tear resistance	ASTM D2582	N	30.3
Flame spread	16 CFR §1610	sec	7.8
		(class)	(1)
Surface resistance at RH 25%	EN 1149-1	Ohms	$<2.5 \times 10^{9}$
Comfort Properties	**Test Method**	**Units**	**Results**
Thermal Resistance	ISO 11092	M^2 K W^{-1}	17.9×10^{-3}

The following tables provide examples of 68-3000 resistance to chemical permeation.

ASTM F739 Chemical Permeation Test Data		
Chemical	**CAS Number**	**BT at 0.1µg/cm²/min ASTM F739 (min)**
Acetone	67-64-1	5
Carbon Disulfide	75-15-0	Imm
Chromium Trioxide 50%	1333-82-0	>480
Dichloromethane 99.9	75-09-2	Imm
Ethanolamine	141-43-5	>480
Ethyl Acetate 99.98%	141-78-6	Imm
Ferric Chloride 45%	7705-08-0	>480
Furfural	98-01-1	>540
Mercury	7439-97-6	>480
n-Hexane 99.8%	110-54-3	Imm
Hydrochloric acid 37%	7647-01-1	193
Hydrofluoric acid 49%	7664-39-3	407
Methanol 99.5%	67-56-1	Imm
Perchloric acid (30%)	7601-93-9	>540
Phenol liquid at 45°C	108-95-2	>480
Potassium Hydroxide 80%	1381-58-3	>480
Sodium Hydroxide, 50%	1310-73-2	>540
Sulfuric Acid (96%)	7664-93-9	>540

68-3000 test data for resistance to penetration of infective agents and bloodborne pathogens is detailed in the table below. For advice on the selection of protective apparel see page 9.

EN 14126 Fabric Barrier to Infective Agents	Result	EN Class
ISO 16604 Resistance to penetration by blood/fluids under pressure	Pass to 20 kPa	n/a
ASTM F1671 Resistance to penetration by blood borne pathogens	Pass	6 of 6
EN ISO 22610 Resistance to wet bacterial penetration (mechanical contact)	No penetration (up to 75 min)	6 of 6
ISO/DIS 22611 Resistance to biologically contaminated aerosols	No penetration	3 of 3
ISO 22612 Resistance to dry microbial penetration	No penetration	3 of 3

See back page for important warnings regarding the limitations of chemical testing.

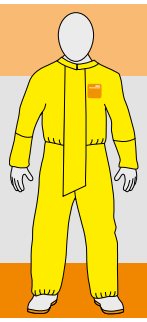
Style 68-3000

Model 103

Suit Features
- Collar
- No hood
- Double zip closure
- Double cuffs
- Elasticated waist, double cuffs and ankles

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Yellow

CATALOG #: **YE30-W-92-103**



Model 111

Suit Features
- 2 piece hood
- Double zip closure
- Double cuffs
- Elasticated hood, waist, double cuffs and ankles

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Yellow

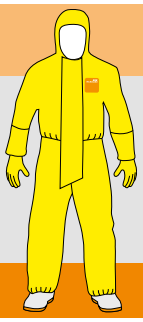
CATALOG #: **YE30-W-92-111**

Model 121

Suit Features
- 2 piece hood
- Double zip closure
- Elasticated hood, waist, ankles and sleeve over cuffs
- Attached Ansell Barrier Gloves

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Yellow

CATALOG #: **YE30-W-92-121**

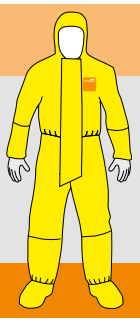


Model 122

Suit Features
- 2 piece hood
- Double zip closure
- Elasticated hood, double cuffs and waist
- Integrated socks with boot overflap

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Yellow

CATALOG #: **YE30-W-92-122**

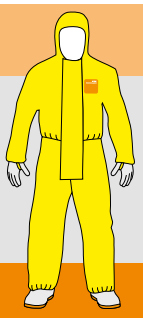


Model 132

Suit Features
- 2 piece hood
- Finger loops
- Single zip with re-sealable stormflap
- Single sleeve
- Elasticated hood, wrist, waist and ankles

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Yellow

CATALOG #: **YE30-W-92-132**



Style 68-3000 Accessories

Model 201 — Jacket

- 2 piece hood
- Double zip closure
- Elasticated hood, wrists and hem
- Single cuff
- Welded seams

Sizes: S-5XL **Case Qty:** 35 **Color:** Yellow

CATALOG #: **YE30-W-92-201**

Model 214 — Apron with Sleeves

- Rear velcro fastening
- Elasticated wrists
- Welded seams

Sizes: S-3XL (02-07) **Case Qty:** 40
Color: Yellow

CATALOG #: **YE30-W-92-214**

Model 213 — Apron

- Tie fastening to waist
- 100 cm long tie fastening

Sizes: One Size **Case Qty:** 100
Color: Yellow

CATALOG #: **YE30-W-92-213**

Model 301 — Trousers

- Elastication to waist and ankles
- No pockets
- Welded seams

Sizes: S-5XL (02-09) **Case Qty:** 40
Color: Yellow

CATALOG #: **YE30-W-92-301**

Model 400 — Overshoes

- Elasticated opening
- Welded seams

Size: One size (fits size 8-12)
Case Qty: 200 pairs
Color: Yellow

CATALOG #: **YE30-W-92-400-00**

Model 406 — Overboots

- Elastic to top of boot
- Tie fastening
- Welded seams

Size: One size (fits size 8-12)
Case Qty: 200 pairs (size 00)
150 pairs (size 05)
Color: Yellow

CATALOG #: **YE30-W-92-406-00 / 05**

Model 507 — Cape Hood

- Balaclava style cape hood covering part of shoulders
- Velcro fastening to front
- Welded seams

Size: One size
Case Qty: 150
Color: Yellow

CATALOG #: **YE30-W-92-507-00**

Model 508 — Cape Hood with visor

- Balaclava style cape hood covering part of shoulders
- Welded seams
- Visor to face opening

Size: One size
Case Qty: 30
Color: Yellow

CATALOG #: **YE30-S-92-508-00**

Model 600 — Oversleeves

- Elasticated at both ends
- Length 20"
- Welded seams

Size: One size
Case Qty: 100 pairs
Color: Yellow

CATALOG #: **YE30-W-92-600-00**

PAPR

MICROCHEM® by AlphaTec® 3000 PAPR

MICROCHEM® by AlphaTec® 4000 PAPR

Providing complete protection from liquid and particulate hazards!

Ventilated suits with filtered air and MICROCHEM® by AlphaTec® technology providing head and body protection from hazardous substances.

Features & Benefits

- **Double elasticated cuffs** - Enables a liquid tight connection with chemical protective gloves (additional taping or Glove Link is required)
- **Air permeable SMS collar** - Maintains sufficient air in the breathing zone whilst allowing excess air to flow into the body of the suit
- **Four exhalation valves** - Exhalation valves fitted to the rear of the suit allows CO_2 to escape and equalises pressure within the suit, allowing a full range of movement without risk of excessive pressure causing harm to the suit or the wearer
- **Model 700 & 701 - Attached socks with elasticated boot overflap** - Socks are designed to be worn inside chemical protective boots with the leg overflap worn outside to reduce the potential for chemical ingress.
- **Panoramic visor design** - Ensures a good field of vision for the wearer
- **Emergency rip cord** – Permits rapid doffing of the suit in cases of emergency or undue distress to the wearer

TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 1073-2 | EN 1149-5 | EN 14126 ASTM F1671 | EN 12941

Respiratory protective device

Approved to EN 12941 TH3 with an Assigned Protection Factor (APF) of 40*

*UK APF according to Annex C of EN529:2005. The APF means the factor by which the hazard is reduced, i.e. how many times cleaner the air is inside the hood than outside

MICROCHEM by AlphaTec PAPR coveralls are certified for use in combination with the below fan units and filters.

Sundström®

Model 700 SR500 / SR500EX PAPR fan units & filters**

SCOTT®

Model 701 Proflow SC / EX fan units and filters**

** **Please note**: Sundström and Scott fan units, breathing hoses and filters sold separately. For advice please contact your distributor.

MICROCHEM® by AlphaTec® 4000

Features & Benefits

Protection - Permeation tested against over 190 chemicals, including chemical warfare agents

Comfort - Textile like inner improves wearer acceptance

Anti-static - Tested according to EN 1149-5 and AATCC 76

Designed to protect - Typical coverall features include color coded dual zip systems and double cuffs

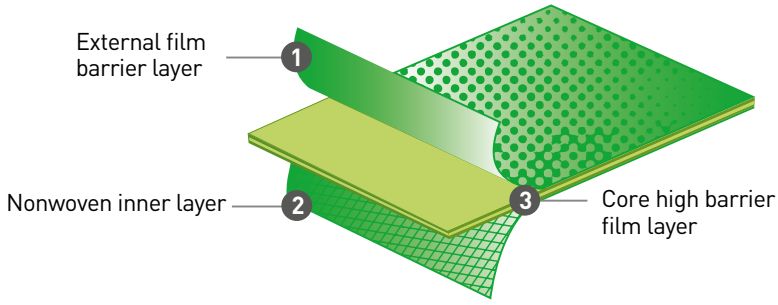
Applications

- 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® by AlphaTec® 4000 is designed to provide an exceptional barrier against organic and inorganic chemicals as well as biological agents.

68-4000

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



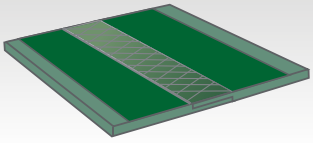
CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Protection Levels & Additional Properties

TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 14126 ASTM F1671 | EN 1073-2 | EN 1149-5 AATCC 76

Ultrasonically Welded & Taped Seams

A feature throughout the 68-4000 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 comfort-cuff design to enable a spray-tight connection with chemical protective gauntlets (additional taping or Glove Link is required)

Specialist Approvals

68-4000 has passed a range of specialist testing methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Suitable for Ex-Zones
See page 11

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

Range Overview

68-4000
Protection against concentrated organic and inorganic chemicals.

▲ 68-4000

68-4000 APOLLO
Fully encapsulated liquid tight (Level B) chemical suit developed in conjunction with the UK Fire & Rescue Services.

▲ 68-4000 APOLLO - See page 50

68-4000 Model 151
Developed for the HAZMAT response. Rubber face seal for use with full face respirators.

▲ 68-4000 151 - See page 51

68-4000 PAPR
Encapsulated suit provides respiratory and full body protection.

▲ 68-4000 PAPR - See page 45

MICROCHEM® by AlphaTec® 4000

68-4000 Technical Data

68-4000 is extensively tested according to North American, European and International standards for both physical and barrier performance.

Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D5034	lbs	66.6
Tensile strength (CD)			51.4
Tear resistance (MD)	ASTM D5733	lbs	29.4
Tear resistance (CD)			21.1
Burst strength	ASTM D3787	lbs	158
Puncture propagation tear resistance	ASTM D2582	N	29.4
Flame spread	16 CFR §1610	sec	DNI
		(class)	(1)
Surface resistance at RH 25%	EN 1149-1	Ohms	$<2.5 \times 10^{9}$
Comfort Properties	**Test Method**	**Units**	**Results**
Thermal Resistance	ISO 11092	$M^2 K W^{-1}$	16.8×10^{-3}

The following tables provide examples of 68-4000 resistance to chemical permeation.

ASTM F739 Chemical Permeation Test Data

Chemical	CAS Number	BT at 0.1µg/cm²/min ASTM F739 (mins)
Acetone	67-64-1	131
Acetonitrile (99.98 wt%)	75-05-8	>540
Ammonia (anhydrous), 99.99% (Gas)	7664-41-7	18
1,3-Butadiene	106-99-0	>540
Carbon Disulfide	75-15-0	2
Chlorine Gas, 99.8%	7782-50-5	>540
Dichloromethane 99.9	75-09-2	Imm
Diethylamine	109-89-7	Imm
Dimethylformamide	68-12-2	>540
Ethyl Acetate 99.98%	141-78-6	43
Ethylene Oxide (Gas)	75-21-8	>540
n-Hexane 99.8%	110-54-3	>540
Hydrogen Chloride, 99.0% (Gas)	7647-01-0	125
Methanol 99.5%	67-56-1	>540
Methyl Chloride (chloromethane)	74-87-3	>540
Nitrobenzene	98-95-3	>540
Sodium Hydroxide, 50%	1310-73-2	>540
Sulfuric Acid (96%)	7664-93-9	>540
Tetrachloroethylene	127-18-4	222
Tetrahydrofuran, 99.98%	109-99-9	Imm
Toluene 99.9%	108-88-3	69

FINABEL 0.7.C
Resistance to Permeation of Chemical Warfare Agents

Chemical	Detection Limit	Temperature (°C)	Breakthrough Time (hh:mm)
Mustard (HD)	0.1µg/cm² (pinpoint BT) or 4 µg/cm² (continuous and homogenous BT)	37	>24:00
Lewisite (L)	Approx. 0.5 µg/cm²	37	>05:00 <06:00
Sarin (GB)	Approx. 0.05 µg/cm²	37	>24:00
VX	Approx. 0.05 µg cm²	37	>24:00

68-4000 test data for resistance to penetration of infective agents and blood borne pathogens is detailed in the table below.
For advice on the selection of protective apparel see page 9.

EN 14126 Fabric Barrier to Infective Agents

Property	Test Method	Result	EN Class
Resistance to penetration by blood borne pathogens	ISO 16604	Pass to 20 kPa	Class 6 of 6
Resistance to penetration by blood borne pathogens	ASTM F1671	Pass	-
Resistance to wet bacterial penetration (mechanical contact)	ISO 22610	No penetration (up to 75 min)	Class 6 of 6
Resistance to biologically contaminated aerosols	ISO/DIS 22611	No penetration	Class 3 of 3
Resistance to dry microbial penetration	ISO 22612	No penetration	Class 3 of 3

See back page for important warnings regarding the limitations of chemical testing.

Style 68-4000

Model 103

Suit Features
- Collar
- No hood
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated outer cuffs, waist and ankles

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Green

CATALOG #: **GR40-T-92-103**

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-5XL (02-09)
Case Qty: 6
Color: Green

CATALOG #: **GR40-T-92-111**

Model 121

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

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Green

CATALOG #: **GR40-T-92-121**

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-5XL (02-09)
Case Qty: 6
Color: Green

CATALOG #: **GR40-T-92-122**

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

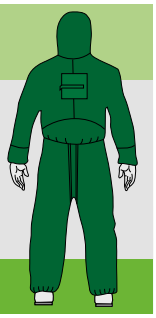
Sizes: S-5XL (02-09)
Case Qty: 6
Color: Green

CATALOG #: **GR40-T-92-125**

Model 162

Suit Features
- Pass-thru device for use with fall arrest equipment
- 2-piece hood
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated hood, outer cuffs, waist and ankles

Sizes: S-5XL (02-09)
Case Qty: 6
Color: Green



CATALOG #: **GR40-T-92-162**

MICROCHEM® by AlphaTec® 4000 APOLLO

Trusted by fire and rescue crews around the world

Developed with the UK Fire & Rescue services MICROCHEM by AlphaTec 4000 APOLLO is a fully encapsulated liquid tight (Level B) chemical suit designed for use in conjunction with self contained breathing apparatus (SCBA)

Applications

- Chemicals
- Oil and petrochemicals
- Pharmaceutical
- Agriculture
- Sewage purification installations
- Industrial and tank cleaning
- Emergency Services (HAZMAT, CBRN)

...may also be suitable for use in Level B applications (according to US Environmental Protection Agency (EPA) & NFPA guidelines).

Contact the Ansell technical team for full details or email **customerserviceus@ansell.com**

Specialist Approvals

Biological Agents
EN 14126:2003 and ASTM F 1671
See page 10

Suitable for Ex-Zones
See page 11

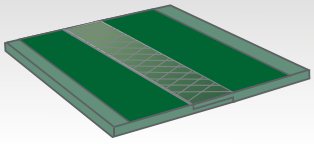
Style 68-4000 APOLLO

Protection Levels & Additional Properties

TYPE 3-B | TYPE 4-B | EN 14126 ASTM F1671

Ultrasonically Welded & Taped Seams

A feature throughout the 68-4000 range, this seam technology is our highest barrier to liquids and particulates.



Model 126

Suit Features

- Rear entry double zip system
- Rear mounted SBCA pouch–universal fit with most styles
- Attached socks with boot over flap
- Attached Ansell Barrier Gloves with no-drip double cuff design
- Rear positioned exhalation valves
- Clear PVC face visor
- Bat-wing design enables air gauge checking within the suit
- Rip cord feature for emergency access
- Radio loop on chest
- Adjustable internal support suspenders

Sizes: M-3XL (03-07)
Case Qty: 4
Color: Green

SCBA rear pouch

Rear mounted BA pouch

Decontamination process example

CATALOG #: **GR40-T-92-126**

MICROCHEM® by AlphaTec® 4000

Developed for first responders and the emergency services

Rear entry Level B suit, with neoprene rubber face seal for a close fit to full face respirators. Ideal for use in hazardous areas where protection against concentrated chemicals and biological agents is required.

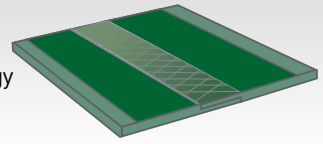
Style 68-4000 Model 151

Protection Levels & Additional Properties

TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 1073-2 | EN 1149-5 AATCC 76 | EN 14126 ASTM F1671

Ultrasonically Welded & Taped Seams

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



Model 151 & 151-G02

Suit Features

- Neoprene rubber face seal
- Rear horizontal zip entry
- Attached socks with boot overflap
- Ultrasonically welded and taped seams

151-G02

- Includes attached Ansell Barrier Gloves, with over sleeves and finger loops

Sizes: S-5XL (03-09)
Case Qty: 8
Color: Green

Model 151 also available in 68-5000

MICROCHEM® by AlphaTec® 5000

Socks with boot overflap

Rear entry double zip system

Neoprene rubber face seal

CATALOG #: **GR40-T-92-151** | **GR40-T-92-151-G02**

Applications

- Chemicals
- Oil and petrochemicals
- Pharmaceutical
- Agriculture
- Sewage purification installations
- Industrial and tank cleaning
- Emergency services (HAZMAT, CBRN)

Specialist Approvals

Biological Agents
EN 14126:2003 and ASTM F 1671
See page 10

Suitable for Ex-Zones
See page 11

MICROCHEM® by AlphaTec® 4000 Accessories

Style 68-4000 Accessories

Model 212 — Apron

- Tie fastening to waist
- 28" x 40"long tie fastening

Sizes: One size
Case Qty: 100
Color: Green

CATALOG #: **GR40-W-92-212-00**

Model 230 — Jacket

- 2 piece hood • Double zip closure
- Elasticated hood, wrists and hem
- Welded and taped seams

Sizes: S-3XL (02-07) **Case Qty:** 20
Color: Green

CATALOG #: **GR40-T-92-230**

Model 406 — Overboots

- Elastic to top of boot
- Tie fastening
- Welded seams

Size: One Size (fits size 8-12)
Case Qty: 200 pairs
Color: Green

CATALOG #: **GR40-W-92-406-00**

Model 507 — Cape Hood

- Balaclava style cape hood covering part of shoulders
- Velcro fastening to front
- Welded seams

Size: One size
Case Qty: 100
Color: Green

CATALOG #: **GR40-W-92-507-00**

Model 215 — Apron with Sleeves

- Velcro fastening to neck
- Tie fastening at the waist
- Double cuff with knitted inner cuff
- Welded and taped seams

Sizes: S-3XL (02-09)
Case Qty: 20
Color: Green

CATALOG #: **GR40-T-92-215**

Model 301 — Trousers

- Elastication to waist and ankles
- No pockets
- Welded & taped seams

Sizes: S-2XL (02-08) **Case Qty:** 20
Color: Green

CATALOG #: **GR40-T-92-301**

Model 516 — Cape Hood with visor

- Hood with visor and 3 inch velcro body panel
- Welded & taped seams

Size: One size
Case Qty: 20
Color: Green

CATALOG #: **GR40-T-92-516-00**

Model 600 — Oversleeves

- Elasticated at both ends
- Welded seams
- Length 20"

Size: One size
Case Qty: 100 pairs
Color: Green

CATALOG #: **GR40-W-92-600-00**

AIRline

MICROCHEM by AlphaTec 3000 AIRline

MICROCHEM by AlphaTec 4000 AIRline

Complete protection from respiratory and skin hazards!

Ventilated / Air-Supplied suits compatible with continuous flow compressed airline breathing apparatus for protection from hazardous liquids and particulates.

Features & Benefits

- **Double elasticated cuffs** - Enables a liquid tight connection with chemical protective gloves (additional taping or Glove Link is required)
- **Air permeable SMS collar** - Maintains sufficient air in the breathing zone whilst allowing excess air to flow into the body of the suit
- **Four exhalation valves** - Exhalation valves fitted to the rear of the suit allows CO_2 to escape and equalises pressure within the suit, allowing a full range of movement without risk of excessive pressure causing harm to the suit or the wearer
- **Model 750 - Attached socks with elasticated boot overflap** – Socks are designed to be worn inside chemical protective boots with the leg overflap worn outside to reduce the potential for chemical ingress.
  Model 752 - Attached sock boots with anti-slip PVC sole version also available.
- **Panoramic visor design** - Ensures a good field of vision for the wearer
- **Emergency rip cord** – Permits rapid doffing of the suit in cases of emergency or undue distress to the wearer

TYPE 3 | EN 1073-1 | EN 1149-5 AATCC 76

CE marked to EN 1073-1:1998 with a nominal protection factor of 50,000 (Class 5 of 5)

EN 14594

Respiratory protective device

AIRline suits are certified for use in combination with the below belt mounted, continuous flow airline regulators.

Sundström

Sundstrom SR507

Features:
- Flow meter
- Warning whistle
- Belt mounted control valve
- Airflow rate 175 to 260 L/min
- Working pressure 5-7 bar (500-700 kPa)
- Working temperature: -10°C to +50°C

Model 750 & 752

www.srsafety.com

SCOTT

SCOTT T-A-LINE

Features:
- Very quiet in use
- Comfortable belt-mounted lightweight ergonomic design
- Easily connected with disconnection protection

Model 750 & 752

www.scottsafety.com

MICROCHEM® by AlphaTec® 5000

Features & Benefits

Protection - Barrier to numerous organic and inorganic chemicals and biological hazards. >480 minutes breakthrough time against 14 of 15 chemicals listed in EN ISO 6529. Fully encapsulated versions are also available.

Comfort - Multi-layer material which is lightweight, yet strong and durable

Highly visible - Bright orange color for improved worker safety

Anti-static - Tested according to EN 1149-5 and AATCC 76

Designed to protect - Innovative design features include liquid-tight dual zip designs without the need for additional taping

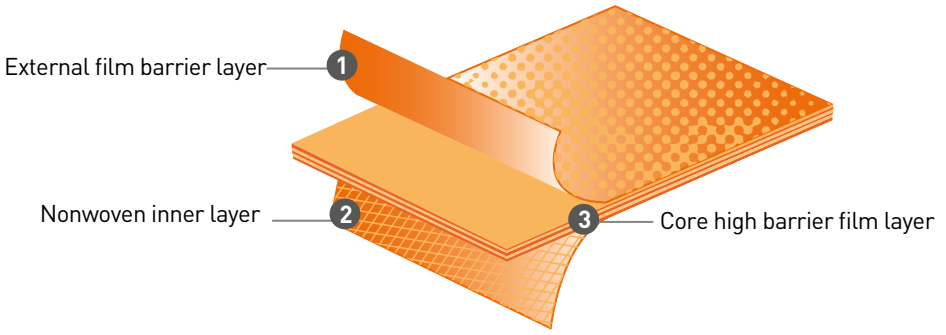
Applications

- Industrial and tank cleaning
- Sewage purification installations
- Chemicals
- Oil and petrochemicals
- Pharmaceuticals
- Mining
- Agriculture
- HAZMAT Emergency Response (i.e. Level B)
- First response and fire service

MICROCHEM® by AlphaTec® 5000 reaches new levels in chemical protection and has been engineered to protect. The highly visible multi-layer fabric is strong, durable and suitable for workers in extremely hazardous areas, including HAZMAT response teams.

68-5000

This highly visible innovative material is strong, durable and suitable for workers in extremely hazardous areas, including HAZMAT response teams.

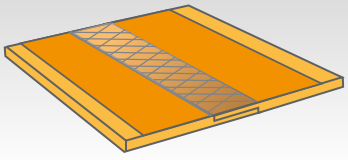


Protection Levels & Additional Properties

TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 1073-2 | EN 1149-5 AATCC 76 | EN 14126 ASTM F1671

Ultrasonically Welded & Taped Seams

A feature throughout the 68-5000 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

68-5000 has passed a range of specialist testing methods including:

Biological Agents
EN 14126:2003 and ASTM F1671
See page 10

Suitable for Ex-Zones
See page 11

Technical Support

For technical datasheets & product flyers contact:
customerserviceus@ansell.com

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

Range Overview

68-5000
Protection against organic and inorganic chemicals and biological hazards

▲ 68-5000

68-5000 model 151
Developed for the emergency services. Rubber face seal for use with full face respirators

▲ 68-5000 151 - See page 58

68-5000 APOLLO
Developed for fire and rescue crews around the world. A fully encapsulated liquid tight chemical suit

▲ 68-5000 APOLLO - See page 59

MICROCHEM® by AlphaTec® 5000

68-5000 Technical Data

68-5000 is extensively tested according to North American, European and International standards for both physical and barrier performance.

Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D5034	lbs	69.8
Tensile strength (CD)			62.7
Tear resistance (MD)	ASTM D5733	lbs	12.4
Tear resistance (CD)			17.7
Burst strength	ASTM D3787	lbs	>250
Puncture propagation tear resistance	ASTM D2582	N	31.9
Flame spread	16 CFR §1610	sec	DNI
		(class)	(1)
Surface resistance at RH 25%	EN 1149-1	Ohms	$<2.5 \times 10^9$

The following tables provide examples of 68-5000 resistance to chemical permeation.

ASTM F739 Chemical Permeation Test Data

Chemical	CAS Number	BT at 0.1µg/cm²/min ASTM F739 (mins)
Acetone	67-64-1	>480
Acetonitrile (99.98 wt%)	75-05-8	>480
Ammonia (anhydrous), 99.99% (Gas)	7664-41-7	41
1,3-Butadiene	106-99-0	>480
Carbon Disulfide	75-15-0	277
Chlorine Gas, 99.8%	7782-50-5	>480
Dichloromethane 99.9	75-09-2	23
Dimethylformamide	68-12-2	>480
Ethyl Acetate 99.98%	141-78-6	>480
Ethylene Oxide (Gas)	75-21-8	55
n-Hexane 99.8%	110-54-3	>480
Hydrogen Chloride, 99.0% (Gas)	7647-01-0	>480
Methanol 99.5%	67-56-1	>480
Methyl Chloride (chloromethane)	74-87-3	>480
Nitrobenzene	98-95-3	>480
Sodium Hydroxide, 50%	1310-73-2	>480
Sulfuric Acid (96%)	7664-93-9	>480
Tetrachloroethylene	127-18-4	>480
Tetrahydrofuran, 99.98%	109-99-9	>480
Toluene 99.9%	108-88-3	>480

FINABEL 0.7.C
Resistance to permeation of Chemical Warfare Agents

Chemical	Detection Limit	Temperature (°C)	Breakthrough Time (hh:mm)
Mustard (HD)	0.1μg/cm² (pinpoint BT) or 4 μg/cm² (continuous and homogenous BT)	37	>17:40
Lewisite (L)	Approx. 0.5 μg/cm²	37	>06:30 <09:30
Sarin (GB)	Approx. 0.05 μg/cm²	37	>24:00
VX	Approx. 0.05 μg/cm²	37	>24:00

68-5000 test data for resistance to penetration of infective agents and bloodborne pathogens is detailed in the table below.

EN 14126 Fabric Barrier to Infective Agents

Property	Test Method	Result	EN Class
Resistance to penetration by blood borne pathogens	ISO 16604	Pass to 20 kPa	Class 6 of 6
Resistance to penetration by blood borne pathogens	ASTM F1671	Pass	-
Resistance to wet bacterial penetration (mechanical contact)	ISO 22610	No penetration (up to 75 min)	Class 6 of 6
Resistance to biologically contaminated aerosols	ISO/DIS 22611	No penetration	Class 3 of 3
Resistance to dry microbial penetration	ISO 22612	No penetration	Class 3 of 3

See back page for important warnings regarding the limitations of chemical testing.

MICROCHEM® by AlphaTec® 5000

Style 68-5000

Model 103

Suit Features
- Collar
- No hood
- Double zip closure
- Double cuffs with knitted inner cuff
- Elasticated outer cuffs, waist and ankles

Sizes: S-3XL (02-09)
Case Qty: 6
Color: Orange

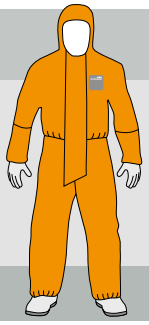
CATALOG #: **OR50-T-92-103**

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 (02-09)
Case Qty: 6
Color: Orange

CATALOG #: **OR50-T-92-111**

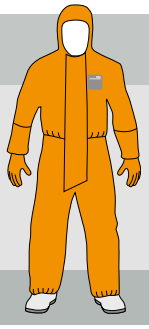


Model 121-G02

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

Sizes: S-3XL (02-09)
Case Qty: 6
Color: Orange

CATALOG #: **OR50-T-92-121G02**



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 (02-09)
Case Qty: 6
Color: Orange

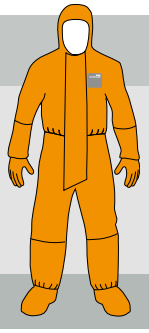
CATALOG #: **OR50-T-92-122**

Model 125-G02

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

Sizes: S-3XL (02-09)
Case Qty: 6
Color: Orange

CATALOG #: **OR50-T-92-125G02**



MICROCHEM® by AlphaTec® 5000

Developed for first responders and the emergency services

Rear entry Level B suit, with neoprene rubber face seal for a close fit to full face respirators. Ideal for use in hazardous areas where protection against concentrated chemicals and biological agents is required.

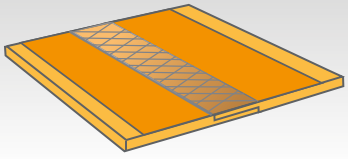
Style 68-5000 Model 151

Protection Levels & Additional Properties

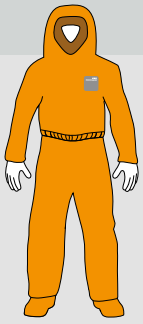
TYPE 3-B | TYPE 4-B | TYPE 5-B | EN 1073-2 | EN 1149-5 AATCC 76 | EN 14126 ASTM F1671

Ultrasonically Welded & Taped Seams

A feature throughout the 68-5000 range, this seam technology is our highest barrier to liquids and particulates.



Model 151 & 151-G02



Suit Features

- Neoprene rubber face seal
- Rear horizontal zip entry
- Attached socks with boot overflap
- Ultrasonically welded and taped seams

151-G02

- Includes attached Ansell Barrier Gloves, with over sleeves and finger loops

Sizes: S-3XL (02-07)
Case Qty: 8
Color: Orange

Model 151 also available in 68-4000

MICROCHEM® by AlphaTec® 4000

Socks with boot overflap

Neoprene rubber face seal

Rear entry double zip system

CATALOG #: **OR50-T-92-151** | **OR50-T-92-151-G02**

Applications

- Chemicals
- Oil and petrochemicals
- Pharmaceutical
- Agriculture
- Sewage purification installations
- Industrial and tank cleaning
- Emergency services (HAZMAT, CBRN)

Specialist Approvals

Biological Agents
EN 14126:2003 and ASTM F 1671
See page 10

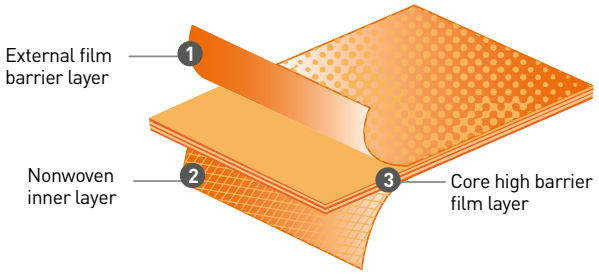
Suitable for Ex-Zones
See page 11

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

MICROCHEM® by AlphaTec® 5000 APOLLO

Developed for fire and rescue crews around the world

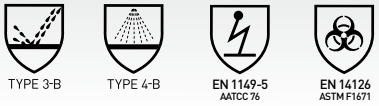
68-5000 APOLLO is a fully encapsulated liquid tight chemical suit designed for use in conjunction with self contained breathing apparatus (SCBA)



This highly visible innovative material is strong, durable and suitable for workers in extremely hazardous areas, including HAZMAT response teams.

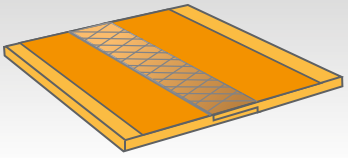
Style 68-5000 APOLLO

Protection Levels & Additional Properties

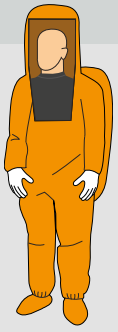


Ultrasonically Welded & Taped Seams

A feature throughout the 68-5000 range, this seam technology is our highest barrier to liquids and particulates.



Model 186



Suit Features

- Side entry double zip system
- Expanded back accommodates SBCA inside suit
- Attached socks with static dissipative sole and boot over flap
- Attached Ansell Barrier gloves with no-drip double cuff design
- Rear positioned exhalation valves
- PVC multi-layer visor
- Bat-wing design enables air gauge checking within the suit
- Enhanced puncture resistance

Sizes: M-3XL (03-07)
Case Qty: 1
Color: Orange

Attached Ansell Barrier gloves with sleeve over flap.

Semi-rigid multi-layer visor

CATALOG #: **OR50-T-92-186**

Applications

- Chemicals
- Oil and petrochemicals
- Pharmaceutical
- Industrial and tank cleaning
- Emergency Services (HAZMAT, CBRN)
- May also be suitable for Level B HAZMAT response in accordance with US Environmental Protection Agency (EPA) & NFPA guidelines)

Contact the Ansell technical team for full details or email **customerserviceus@ansell.com**

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

MICROCHEM® by AlphaTec™ 6000 GTS Gas-Tight Suits

Features & Benefits

Fabric technology - Co-extruded multi-layer high performance barrier laminate with scrim reinforcement.

Lightweight - Flexible and yet incredibly strong material with an excellent barrier to numerous hazardous chemicals.

Highly visible - Bright orange color for improved worker safety.

Protection - Tested against numerous chemicals including the ASTM F1001 test battery.

Design - Features include a DYNAT/YKK Gas-tight zipper that provides protection and performance in the most hostile of chemical environments.

Visor technology - Semi-rigid 3 layer GAG visor providing excellent optical clarity.

Seam technology - Ultrasonically welded and hot air taped.

MICROCHEM® by AlphaTec® 6000 Limited Use Gas-Tight Suits provide protection for emergency responders or chemical workers against dangerous and toxic chemicals in either liquid or gaseous form. MICROCHEM® by AlphaTec® 6000 are Level A suits where self-contained breathing apparatus (SCBA) is worn on the inside.

MICROCHEM® by AlphaTec®
6000-GTS

100% Quality Inspected
All suits are 100% Quality Inspected and pressure tested according to ASTM 1052 prior to despatch.

10 Year Shelf Life
When stored in accordance with user instructions.

Applications

- Chemicals
- Petrochemicals
- Pharmaceuticals
- First response
- Fire service
- Industrial and tank cleaning
- Sewage treatment
- Health service
- Nuclear
- Shipping

Protection Levels & Additional Properties

TYPE 1

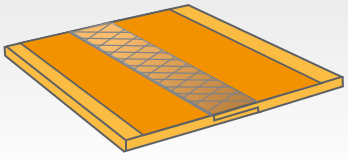
Type 1a
EN 943-1:2002

Type 1a-ET
(Limited use)
EN 943-2:2002

EN 14126
ASTM F1671

Ultrasonically Welded & Taped Seams

This seam technology is our highest barrier to liquids and particulates.



Technical Support
For technical datasheets & product flyers contact:
customerserviceus@ansell.com

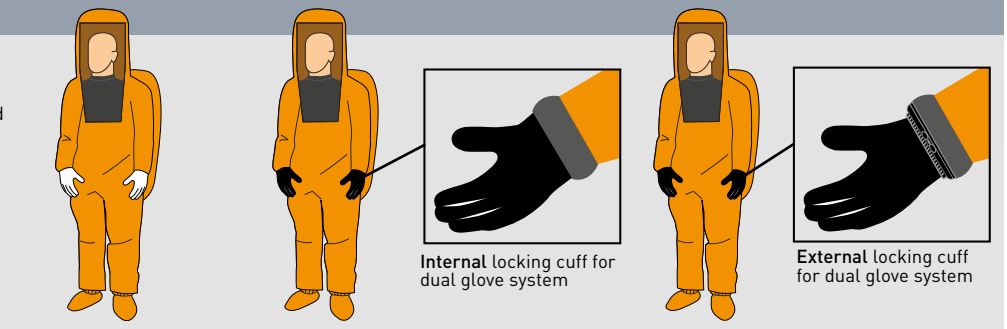
Note: this suit must be worn with self-contained breathing apparatus.

Style **68-6000**

Suit Features

- 2 MICROCHEM® exhalation valves fitted in hood
- DYNAT/YKK gas-tight zipper
- Interchangeable locking cuff for dual glove system
- Permanently attached Ansell Barrier Neoprene glove with sleeve over-cuffs

Sizes: S-3XL (02-07)
Case Qty: 1
Color: Orange



OR60-T-92-801-OX-G02 | OR60-T-92-802-OX-GA1 | OR60-T-92-803-OX-GA1

CATALOG #: **OR60-T-92-801-OX-G02** | **OR60-T-92-802-OX-GA1** | **OR60-T-92-803-OX-GA1**

MICROCHEM® by AlphaTec™ 6000 GTS Gas-Tight Suits

FEATURES & BENEFITS

Semi-rigid 3 layer PET visor
Provides a wide field of vision with free head movement and enough head room for use with a safety helmet.

Anti-Fog Wipe Included

DYNAT/YKK Gas-Tight zipper
Provides protection and performance in the most hostile of chemical environments. The zip has an outer zip flap made of the same material as the suit and velcro fastening.

Two MICROCHEM® / AlphaTec® exhalation valves fitted in the hood

Reinforced knees

Fabric Physical Performance - ASTM Test Data			
Property	Test Method	Units	Result
Seam strength (material seam)	ASTM D 571	lbs-f	89.6
Seam strength (material-visor seam)			76.2
Burst strength	ASTM D 3787	lbs-f	62
Puncture propagation tear resistance (MD)	ASTM D 2582	N	36.2
Puncture propagation tear resistance (CD)			35
Tear (Trapezoidal) resistance (MD)	ASTM D 5587	lbs-f	9.1
Tear (Trapezoidal) resistance (CD)			10.2
Flammability	16 CFR Part 1610	sec	DNI - Class 1 >3.5

68-6000 Fabric EN 14126:2003 Results		
Test Method	**Results**	**EC Class**
ISO 16603 Resistance to penetration by blood/fluids under pressure	Pass to 20 kPa	-
ISO 16604 Resistance to penetration by blood borne pathogens	Pass to 20 kPa	Class 6 of 6
EN ISO 22610 Resistance to wet bacterial penetration (mechanical contact)	No penetration (up to 75 min)	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

Chemical permeation testing (Permeation Resistance) EN ISO 6529			68-6000	GAG Visor	Ansell Barrier Glove*
Chemical Name	**CAS Number**	**Physical State**	**Breakthrough Time (0.1 µg/cm²/min)**		
Acetone	67-64-1	Liquid	>480	>480	>480
Acetonitrile	75-05-8	Liquid	>480	>480	>480
Ammonia (Gas, 1 atmos.)	7664-41-7	Gas	75	>480	8**
Ammonia (Liquid, -34 °C)	7664-41-7	Liquid	>480		
Butadiene 1,3-	106-99-0	Gas	>480	>480	
Carbon Disulphide	75-15-0	Liquid	>480	>480	>480
Chlorine (Gas, 1 atmos.)	7782-50-5	Gas	>480	>480	>480
Dichloroethane 1,2-	107-06-2	Liquid	>480		>480
Diethylamine	109-89-7	Liquid	>480	>480	>480
Dimethylformamide, N,N-	68-12-2	Liquid	>480	>480	
Ethyl Acetate	141-78-6	Liquid	>480	>480	>480
Ethylene Oxide (Gas, 1 atmos.)	75-21-8	Gas	>480	>480	
Heptane, n-	142-82-5	Liquid	>480	>480	>480
Hydrogen Chloride (Gas, 1 atmos.)	7647-01-0	Gas	>480	>480	246
Methanol	67-56-1	Liquid	>480	>480	>480
Methylene Chloride	75-09-2	Liquid	>480	135	20
Nitrobenzene	98-95-3	Liquid	>480	>480	
Sodium Hydroxide (50% w/w)	1310-73-2	Liquid	>480	>480	
Sulfuric Acid (95-96% w/w)	7664-93-9	Liquid	>480	236	>480
Tetrachloroethylene	127-18-4	Liquid	>480	>480	
Tetrahydrofuran	109-99-9	Liquid	>480	>480	>480
Toluene	108-88-3	Liquid	>480	>480	>480

* Gloves tested according to ASTM F739. Note: For information on the permeation resistance and mechanical performance of the outer glove please refer to the glove manufacturers instructions for use document. A copy of which is provided with each suit. ** BT at 1.0 µg/cm²/min according to EN 374-3. *** Tested at 48% and 95%

See back page for important warnings regarding the limitations of chemical testing.

MICROCHEM® by AlphaTec® 1500 PLUS FR

Features & Benefits

Protection - Flame retardant and anti-static SMMS nonwoven provides a good barrier to particulates and low hazard liquid sprays or splashes

Comfort - Air and water vapor permeable ("breathable") to help reduce the risk of heat stress

Anti-static - Tested according to EN 1149-5 and AATCC 76

Optimized Body Fit - Ensures full freedom of movement when worn over heat and flame protective clothing (EN ISO 14116 Index 2 or above).

Applications

- Petrochemical Industry
- Industrial Cleaning
- Utilities
- General Maintenance

MICROCHEM® by AlphaTec® 1500 PLUS FR is a highly breathable, flame retardant and anti-static SMMS polypropylene nonwoven designed for protection from particulates and light, non-flammable liquid spray or splash*

*Must be worn over thermal protective garments, such as NOMEX® and never be worn next to the skin.

Style 68-1500 PLUS FR

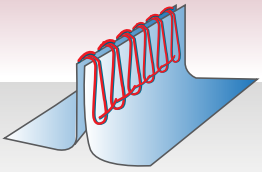
Intended to be worn over heat and flame protective clothing, 68-1500 PLUS FR offers wearers protection from particulates (Type 5) and non-flammable, non-pressurised liquid sprays or splashes (Type 6)*

Protection Levels & Additional Properties

TYPE 5 | TYPE 6 | EN 1073-2 | EN ISO 14116 INDEX 1/0/0 | EN 1149-5 AATCC 76

Serged Seams

Combining strength with particle barrier

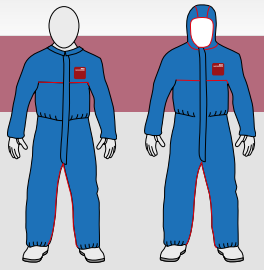


Model 103 & 111

Suit Features

- 3-piece hood or collar (Model 103)
- 2-way front zipper with DST storm flap
- Finger loops
- Elasticated wrists, waist and ankles
- Red stitching for ease of identification

Sizes: S-5XL (02-09)
Case Qty: 25
Color: Navy



(Model 103) (Model 111)

CATALOG #: Model 103: **NR17-S-92-103** | Model 111: **NR17-S-92-111**

*68-1500 PLUS FR should never be worn in isolation for flame retardant protection. Always wear over the top of garments which achieve EN ISO 14116 Index 2 or above.

68-1500 PLUS FR Technical Data

68-1500 PLUS FR is extensively tested in accordance with statutory requirements, including physical performance attributes.

Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D5034	lbs-f	35.71
Tensile strength (CD)			27.89
Tear resistance (MD)	ASTM D5733	lbs-f	12.07
Tear resistance (CD)			9.73
Burst strength	ASTM D3787	lbs-f	30
Air permeability	ATM D737	$ft^3/ft^2/min$	>40
Moisture vapor transmission	ASTM E96, Method B	g/m^2x24hr	>1,000
Flame spread	16 CFR §1610	sec	DNI
		(class)	(1)
Surface Resistivity (at 70°F and 40%R.H.)	**Test Method**	**Units**	**Results**
External / Internal surface	AATCC 76	ohms/square	$<5 \times 10^{10}$
Surface Resistivity (at 70°F and 20%R.H.)	**Test Method**	**Units**	**Results**
External / Internal surface	AATCC 76	ohms/square	$<5 \times 10^{10}$
Thermal Properties	**Test Method**	**Units**	**Results**
Vertical flammability	NFPA 701: 1989 Small Scale	-	Pass
	NFPA 701: 1999	-	Pass
Flame Spread	ISO 15025 Procedure A	-	Index 1
After flame	ASTM F1930	Sec	<2.0
Vertical flame resistance of textiles	ASTM D6413	Sec	<1sec after flame 8 in char length

Flame-retardant Range Overview

68-1500 PLUS FR

A highly breathable, flame-retardant and anti-static SMMS polypropylene nonwoven designed for protection from particulates and light liquid sprays or splashes.

▲ 68-1500 PLUS FR

68-CFR

Offers wearers protection from liquid chemicals to EN Type 3 & 4 and particulates to EN Type 5, and peace of mind to workers in potentially explosive/flammable environments.

▲ 68-CFR - see page 66

CAUTION: This product contains natural rubber latex which may cause allergic reactions.

MICROCHEM® by AlphaTec® CFR

Features & Benefits

Protection - Flame retardant treated fabric with PVC barrier film offering wearers protection from liquid chemicals

Versatile - In most applications where there is the need for protection from chemical spray without compromising wearer protection in the event of a flash fire

Optimized body fit - Improves wearer comfort and safety

Highly visible - Highly visible bright red color to improve worker safety

Applications

- Oil and petrochemicals
- Petroleum distribution and processing
- Utilities

MICROCHEM® by AlphaTec® CFR is a flame retardant and antistatic fabric offering protection from particulates and light liquid spray or splash without compromising worker protection in the event of a flash fire*

*Must be worn over thermal protective garments, such as NOMEX® and never be worn next to the skin.

Style 68-CFR

In high risk areas 68-CFR is proven to protect

CFR offers wearers protection from liquid chemicals to EN Types 3 & 4 and peace of mind to workers in potentially explosive/flammable environments, by decreasing the risk of burn injury when worn over thermal protective workwear.*

Wear over a thermal protective garment (EN ISO 14116 Index 2 or above) to provide chemical spray protection according to Types 3 and 4.

Chemical Barrier Performance

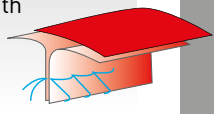
Chemical Name	ASTM F903 Penetration (min)	ASTM F739 Permeation (min)
Acetone	>60	12
Carbon Disulfide	>60	7
Dichloromethane	>60	4
Ethyl Acetate	>60	16
Hexane	>60	>480
Sulfuric Acid	>60	10
Tetrachloroethylene	>60	>480
Toluene	>60	6

*68-CFR should never be worn in isolation for flame retardant protection. Always wear over the top of garments which achieve EN ISO 14116 Index 2 or above.

Protection Levels & Additional Properties

Serged & Taped Seams

Increased strength and an effective liquid & particle barrier

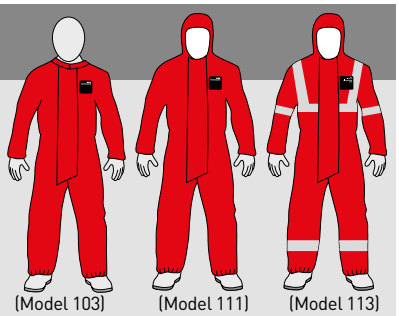


Model 103, 111 & 113

Suit Features
- Collar (Model 103)
- 2 piece hood (Model 111)
- 2 piece hood with reflective Hi-Vis tape for enhanced visibility (Model 113)
- Elasticated hood, wrists and ankles
- Double zip closure

Sizes: S-5XL (02-09)
Case Qty: 20 (02-07) 15 (08-09)
Color: Red

CATALOG #: **RD96-T-92-103 | RD96-T-92-111 RD96-T-92-113**



CAUTION: This product contains natural rubber latex which may cause allergic reactions.

68-CFR Technical Data

68-CFR is extensively tested according to North American, European and International standards for both physical and barrier performance.

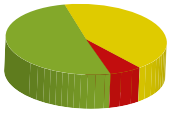
Fabric Physical Properties	Test Method	Units	Results
Tensile strength (MD)	ASTM D1117/D1682	lbs	30.8
Tensile strength (CD)			25.9
Burst strength	ASTM D3786-87	lbs	39.8
Surface Resistance at RH 25%	EN 1149-5	Ohms	$<2.5x10^9$
Thermal Properties	**Test Method**	**Units**	**Results**
Vertical flammability	NFPA 701: 1989 Small Scale	-	Pass
	NFPA 701: 1999	-	Pass
Flame spread	ISO 15025 Procedure A	-	Index 1
After flame	ASTM F1930	Sec	<2.0
Thermal Protective Performance	NFPA 1971-97	-	6.8
Vertical flame resistance of textiles	ASTM D6413	Sec	<1sec after flame <6 in char length

68-CFR

Simulated flash fire test data

ASTM F 1930
Standard test method for evaluation of flame resistant apparel for protection against flash fire simulations using an instrumented mannequin.

Body Burn Prediction
Flame Exposure Time: 3.5 seconds (data acquisition time 30 seconds)*
Mean heat flux: 2 cal/cm².sec



Apparel System A

- 2nd degree burns = 43.44%
- 3rd degree burns = 6.56%
- No burn

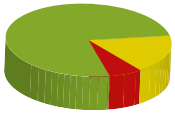
% Total burn = 50%

Nomex® only

Outer layer – Single use 1.9 oz/yd² microporous film laminate coverall

Mid layer – Inherently FR 6.0 oz/yd² thermal protective coverall

Base layer – no underwear



Apparel System B

- 2nd degree burns = 17.76%
- 3rd degree burns = 6.56%
- No burn

% Total burn = 24.32%

MICROCHEM by AlphaTec CFR coverall over Nomex®

Outer layer - with MICROCHEM by AlphaTec CFR coverall

Mid layer – Inherently FR 6.0 oz/yd² thermal protective coverall

Base layer – no underwear

Note: The burn injury results are expressed by calculating the percentage burn injury based on the total area of mannequin covered by the garments under test being 100%. For these tests the head, hands and feet were therefore not included in the calculations.

Technical Support

For copies of the simulated flash fire test reports contact our technical team on **customerserviceus@ansell.com**

68-CFR 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 8.

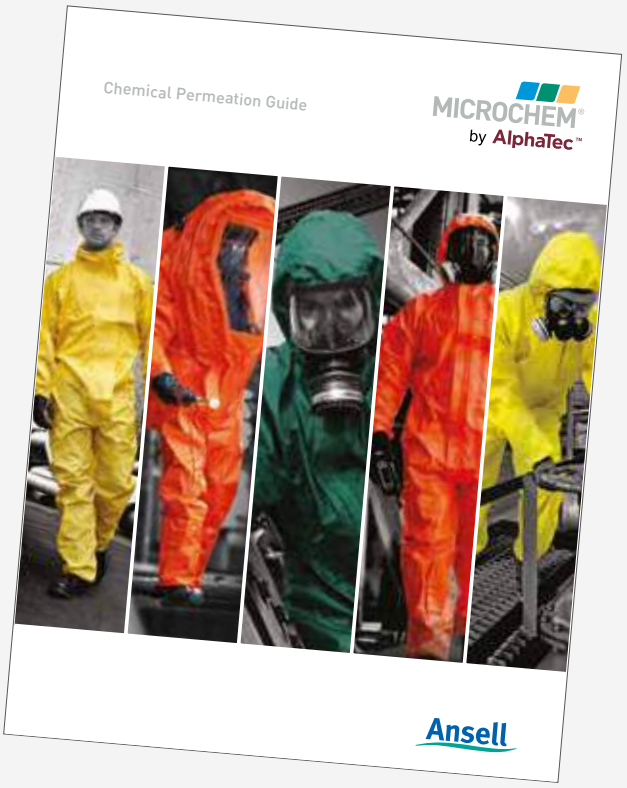
EN14126 Barrier to Infective Agents	Result	EN Class
ISO 16604 Resistance to penetration by blood borne pathogens	Pass to 20 kPa	Class 6 of 6
ASTM F1671 Resistance to penetration by blood borne pathogens	Pass	-
EN ISO 22610 Resistance to wet bacterial penetration (mechanical contact)	No penetration (up to 75 min)	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® by AlphaTec® Chemical Permeation

Working with chemicals, you and your colleagues face hazards every day. Everything from an accidental spill or splash exposure to industrial chemicals, warfare agents and radioactive processes.

The resistance of MICROCHEM® by AlphaTec® to permeation by a hazardous chemical is determined by measuring the breakthrough time and permeation rate of the chemical through the fabric. Permeation tests are carried out by independent, accredited laboratories in accordance with ISO 6529, EN369, EN374-3 and ASTM F739.

For more information on test methods or to receive a copy of our Chemical Permeation Guide please contact:
customerserviceus@ansell.com



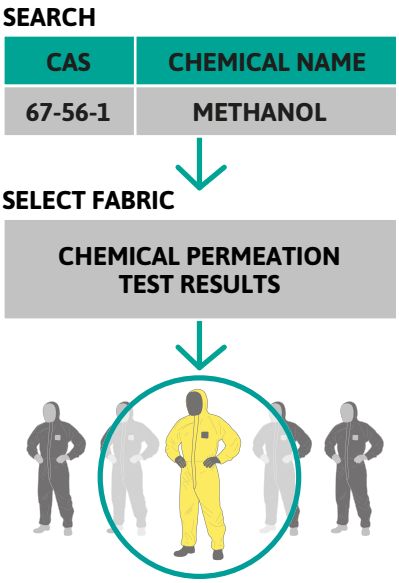
ONLINE Chemical Permeation Database - Powered by ANSELL GUARDIAN™

Features up to date permeation test data for numerous chemicals including the ASTM F1001 and EN ISO 6529 standard list of challenge chemicals. With all testing performed by independent accredited laboratories.

For specific chemical protection challenges, an expert assessment is available to provide a simplified set of choices, drawn from our broad portfolio of chemical protective clothing.

- ✔ **Instant access to over 250 chemicals with permeation data for MICROCHEM® material technology**
- ✔ **Easy to use navigation**
- ✔ **Allows you to compare barrier performance**

For up to the minute chemical permeation data visit:
www.ansell.com/en/permeation



AlphaTec®

Glove Connector

Providing an integrated chemical protection solution

The simple solution for attaching chemical gloves to coveralls.

Features & Benefits

- Innovative design utilizing the latest polymer technology
- Creates a liquid tight seal between glove and cuff
- Consistent and reliable alternative to taping
- Quick and easy fit - improves productivity
- Works with a wide variety of chemical glove thicknesses
- Ribbed cone and collar for secure attachment
- AlphaTec® - Advanced Chemical Protection

Industries

- Agriculture
- Chemical
- Construction
- Food Manufacturing
- Life Sciences
- Oil and Petrochemical
- Waste Disposal

Applications

- Caustic clean downs
- Chemical handling/transportation
- Industrial tank cleaning
- Paint spraying
- Sewage purification inspections
- Solvent degreasing and parts cleaning

Tested in accordance with ISO 17491-3:2008 - Determination of resistance to penetration by a jet of liquid (jet test)

Coverall	Ansell Glove Brand & Material Technology		
MICROCHEM® by AlphaTec® 68-2300 PLUS	MICROFLEX® 93-260	7.8 mil (0.198mm)	Neoprene & Nitrile
	AlphaTec® 58-530	13 mil (0.33mm)	Nitrile
MICROCHEM® by AlphaTec® 68-3000	ChemTek™ 38-612	13 mil (0.3mm)	Butyl/Viton
MICROCHEM® by AlphaTec® 68-5000	Scorpio® 09-924	60 mil (1.5mm)	Neoprene

Catalog ID	Package
AC01-P-92-070-00	1 pair/bag, 5 bags/inner box, 8 boxes/case

Patent Pending

Product Selector Guide

MICROCHEM® by AlphaTec®

How to use this product selector guide...

STEP 1 Choose the industry, type of work & hazard

STEP 2 Find the product which is compatible

INDUSTRY	TYPE OF WORK	POTENTIAL HAZARD	
Manufacturing	General maintenance work	Oil / grease / general dirt and grime	**68-1500 / 68-1500 PLUS**
	Chemical handling / transportation	**What chemicals are being used?** See chemical permeation data. Visit www.ansell.com or tel US: 1-800-800-0444	
	Low pressure industrial cleaning	Dilute chemicals **(low hazard)**	**68-2000**
	Sewage purification installations / hazardous waste	Human waste, bacteria, chemicals	**68-3000 / 68-4000 / 68-5000**
	Industrial tank cleaning	Chemicals	**68-3000 / 68-4000 / 68-5000**
	Working with MDF and hard woods	Dust and particulates	**68-1500 / 68-1500 PLUS**
	Fibre glass sanding and cutting	Glass fibre / dust / particulates	**68-2000 COMFORT**
	Spray painting	Paint mist	**68-2000 / 68-2000 COMFORT / 68-3000**
Life Sciences	Milling / powder rooms / laboratories / working with infective agents	Liquids / particulates **(low to moderate spray/splash)**	**68-2000 STANDARD**
		Liquids / particulates **(high level spray)**	**68-2000 Ts PLUS**
	Active Pharmaceutical Ingredients (APIs)	Particulates **(low to moderate concentration)**	**68-2000 Ts PLUS**
		Particulates **(high concentration)**	**68-2500 PAPR**
Food & Agriculture	Animal food handling	Particulates (e.g. grain)	**68-1500 / 68-1500 PLUS**
	Livestock and poultry handling	Airborne bacteria and parasites **(light duty)**	**68-2000**
		Airborne bacteria and parasites **(heavy duty)**	**68-2500**
	Crop spraying	Dilute pesticides, herbicides, insecticides and fungicides **(low to moderate spray/splash)**	**68-2000**
		Dilute pesticides, herbicides, insecticides and fungicides **(high level spray)**	**68-2000 Ts PLUS**
	Chemical handling	Mixing / cleaning phase	**68-4000**
	Cold Storage	Ammonia Emergency Response	**68-6000 / 68-4000**
Construction	Asbestos related work	Asbestos	**68-1500**
	Roof insulation removals refit	Glass fibre / dust / particulates	**68-1500**
	Drilling / grinding / sanding / cutting / sanding	Dust / particulates	**68-1500**
Oil & petrochemical	Drilling	Oil based mud protection	**68-4000**
	Petroleum distribution & processing	General dirt **(low to moderate spray/splash)**	**68-FR / 68-1500 PLUS FR**
	Tank cleaning involving flammable liquids	Chemicals / flash fire **(high level spray/splash)**	**68-CFR**
Chemical	Chemical handling / transportation	**What chemicals are being used?** See chemical permeation data. Visit www.ansell.com or tel US: 1-800-800-0444	
	Industrial tank cleaning	Chemicals	**68-3000 / 68-4000 / 68-5000**
	Emergency Response	Hazardous chemical leakages / spills	**68-6000**

The Ansell Difference

MICROCHEM® by AlphaTec®

Our range of chemicals suits offer

Whole suit testing **Respirator fit hoods** Unobtrusive labels
Size guide on labels **Traceable labels** Antistatic **Silicone free** Fully elasticated
ANSI/ISEA 101 certified **Larger sizing** Individually packaged

Ansell

MICROCHEM® by AlphaTec®

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Disclaimer
All testing data reflects performance of fabric, not complete garments, in a laboratory under controlled conditions. The results relate only to the fabric, brands and colors detailed and do not demonstrate performance of a whole garment in an end-use application. Seams and closures may have lower breakthrough times, particularly when worn or damaged. This data is intended for persons having the expertise required to evaluate protective clothing for a specific application and/or chemical at their own discretion and risk.

It is the user's responsibility to select an appropriate garment, gloves, boots and other equipment for a particular use and to determine when it must be replaced. The user should be adequately trained in the proper use, handling, storage, maintenance and disposal of this garment. Review all instructions and available information prior to use. Inspect the protective clothing for damage which could affect its protective function (eg; holes, tears, damaged seams and fastenings, heavily soiled areas) and replace damaged clothing. These garments and/or fabrics are not suitable for use with all chemicals or hazardous agents. Some materials used in overboots or overshoes are not for use in environments where there is a risk of slipping and/or falling. The manufacturer disclaims all warranties and representations not contained in the literature supplied with each garment.

The determination of the suitability of Ansell products for an application is the final responsibility of the user. Upon contamination, wear or damage, the garment should be removed and disposed of properly according to local regulations. The manufacturer disclaims all responsibility for the improper use of Ansell products. In the unlikely event of defects, do not wear the garment. Return the defective garment (unused and uncontaminated) to your distributor. Faulty garments are replaced free of charge. Do not store garments in excess heat or direct sunlight.

Products that provide protection against chemicals are not 'chemical proof' and do not completely prevent or eliminate the potential for chemical burns or associated injuries. Products that provide 'fire protection' or 'flame resistance' are not 'fire proof' and will not completely prevent or eliminate the potential for burns or associated injuries. Neither this document nor any other statement made herein by or on behalf of Ansell should be construed as a warranty of merchantability or that any Ansell product is fit for a particular purpose. Ansell assumes no responsibility for the suitability or adequacy of an end-user's selection of a product for a specific application.

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