

Know What You're Getting Into.



March 2014



THE SIGN SAYS DANGER. THE SUIT SAYS KAPPLER.

RELAX. It takes a lot of confidence to put your brand on a Level A suit. It's a promise of protection we don't take lightly. But from gas-tight garments to basic coveralls, we're the first to tell you:

It's not just the suit

It's knowing it's the right suit, made from the right fabric, with the right seam. And the right test data that confirms all of the above. And it's knowing something about the people behind the technology that makes the protection possible in the first place.

In 1976, very little was known about chemical protective clothing. And a little-known company called Kappler was just getting started on its mission to "keep bad stuff off people." The years since have seen Kappler define an entire industry with patented fabrics, innovative seaming technology and unique garment designs. For more than 35 years, Kappler has built a reputation for quality, innovation and straightforward advice on what to wear. Today more than ever, the Kappler brand on your garment means you always know what you're getting into.



Made in the USA takes on special meaning when you don a Zytron® or Frontline® garment. American-made quality provides an extra edge when it comes to the confidence factor, plus you benefit from faster delivery.



Know What You're Getting Into.





Precision Decision.

When there's no room for guesswork, Kappler delivers the data you need.

Whether you're in hazmat response mode or specifying apparel for a routine bid, Kappler helps you choose with confidence. We sell you the suit, but we *give* you the data to ensure a safe decision.

Our HazMatch® selection guide lets you search by chemical or by fabric, and easily find a garment that's a safe match for your situation. Use it online or get the free app for a quick, accurate recommendation.

Got a suit but not sure if it's right for the hazard? Just scan the innovative ChemScan™ QR code garment label for the latest test results for that specific fabric. Our website is an excellent resource for everything from how-to videos to NFPA details. And Kappler's industry-leading expertise is always just a phone call away for comprehensive tech support.

At Kappler, the suit is just the beginning. The data – and how to use it – always let's you know what you're getting into.



ChemScan QR code garment label.



Use HazMatch online at kappler.com or get the free app.

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NFPA

Standards Overview

A handy reference guide to NFPA apparel standards.

The National Fire Protection Association (NFPA) develops, publishes and disseminates consensus codes and performance standards intended to minimize the possibility and effects of fire and other risks. Below is an overview of the NFPA standards that apply specifically to protective apparel, along with details on our products certified to these standards. If you need additional information on NFPA or other technical issues, please contact Customer Service at 1-800-600-4019 or email customerservice@kappler.com.



NFPA Chemical Standards Overview					
	NFPA 1991	NFPA 1992	NFPA 1994 Class 2	NFPA 1994 Class 3	NFPA 1994 Class 4
Scope	Hazmat Response Vapor	Hazmat Response Liquid	Chem/Bio Terrorism Incident Response Vapor	Chem/Bio Terrorism Incident Response Liquid	Chem/Bio Terrorism Incident Response Particle
Chemical vs Garment Fabric, Seams, Visors, Gloves, Boots	Permeation resistance 1 hr vs 21 industrial chemicals, 4 toxic industrial chemicals and warfare agents sarin and mustard	Penetration resistance 1 hr vs 7 industrial chemicals	Permeation resistance 1 hr vs 5 toxic industrial chemical and mustard and soman	Permeation resistance 1 hr vs 5 toxic industrial chemicals and mustard and soman	Not Required
Challenge Level	100 % concentration and full contact 100 g/m2 agents	100 % concentration and full contact	Liquids 10 g/m2 Gases 350 ppm Closed Top Cell	Liquids 10 g/m2 Gases 40 ppm Open Top Cell	Not Required
Breakthrough Criteria	ASTM F 739 Normalized Rate Agents Cumulative 4.0 mustard, 1.25 sarin	ASTM F 903 Visual liquid	ASTM F739 Cumulative 6.0 TICs, 4.0 mustard, 1.25 soman	ASTM F 739 Cumulative 6.0 TICs, 4.0 mustard, 1.25 soman	Not Required
Whole Garment	ASTM F 1052 Pressure Test SF6 inward leakage ASTM F 1359 Shower Test > 60 min Flashfire Option 7 second flash propane	ASTM F 1359 Shower Test > 20 min	MIST PDDF >360 ASTM F 1359 Shower Test > 20 min	MIST PDDF >120 ASTM F 1359 Shower Test >4 min	Particle Inward Leakage Test < 5%
Flame Resistance ASTM F 1358	Pass	Not Required	Not Required	Not Required	Not Required
COMFORT ASTM F 1868 Total Heat Loss	Not Required	Not Required	Not Required	Pass	Pass
Viral Resistance ASTM F 1671 FABRIC/ SEAMS	Not Required	Not Required	Pass	Pass	Pass
Components	Boots/SCBA	Boots/Respirator	Boots/SCBA	Boots/Specify Respirator	Boots/Specify Respirator
Kappler Products	Frontline® 500 - F5H580-91 F5H580-9C F5H580-9Z	Zytron® 300 - Z3H426-92 Z3H427-92 Z3H428-92 Z3H437-92 Z3H576-92 Z3H577-92 Z3H579-92	Zytron® 500 - Z5HTN-C2		

ProVent®



General Hazard Protection

Kappler sews up general hazard protection with the microporous advantage.



From basic dirt to paint spray to blood and viral hazards, the ProVent range offers a fabric and garment perfectly suited to the job. And they all offer the benefit of microporous fabric technology – another innovation that Kappler introduced to the industry which proves that protection and breathability are not mutually exclusive.






Boot Covers

 <p>Knee-High, Hook and Loop Ankle Closure, Elastic at Top, 2-Ply Sole</p> <p>ProVent 10,000 <i>Ultrasonic</i> – MN026 SM-XL, Blue or White 50 prs/cs, 11 lb / 5 kg</p>	 <p>Knee-High, Elastic at Top and Ankle</p> <p>ProVent 7000 <i>Ultrasonic</i> – 10423 NS Gray Skid Resistant Bottom One Size, White 50 prs/cs, 5 lb / 2.3 kg</p>
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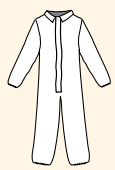



Shorts / Sleeves

 <p>Modesty, Elastic Waist</p> <p>ProVent 7000 <i>Serged</i> – LS810 XS-5X, White 100/cs, 9 lb / 4.1 kg</p>	 <p>Elastic at Both Ends</p> <p>ProVent 7000 <i>Serged</i> – P75501 One Size 18", White 100 prs/cs, 6 lb / 2.7 kg</p>
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Lab Coats

 <p>5-Snap Front Closure, Knit Collar and Cuffs, 2 Sewn-on Hip Pockets</p> <p>ProVent 12,000 <i>Serged</i> – PNSJ2 XS-5X, Yellow 30/cs, 12 lb / 5.4 kg</p>	 <p>Full Cut, 5-Snap, Collar</p> <p>ProVent 7000 <i>Serged</i> – P7S210 No Pockets XS-5X, White 30/cs, 8 lb / 3.6 kg</p> <p><i>Serged</i> – P7S212 With Pockets XS-5X, White 30/cs, 8 lb / 3.6 kg</p>	 <p>Full Cut, 6-Snap Front or Zipper Closure, Knit Collar and Cuffs, 3 Sewn-on Pockets (1 Breast and 2 Hip)</p> <p>ProVent 10,000 <i>Serged</i> – MS235 Snap closure XS-5X, Blue or White 30/cs, 18 lb / 8.2 kg</p> <p><i>Serged</i> – MS225 Zipper closure XS-5X, Blue or White 30/cs, 18 lb / 8.2 kg</p>
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Coveralls

 <p>Zipper Front, Traditional Collar, Available with Elastic Wrists and Ankles or Knit Cuffs</p> <p>ProVent 7000 <i>Serged</i> – P7S412 No Elastic XS-5X, White 25/cs, 12 lb / 5.4 kg</p> <p><i>Serged</i> – P7S417 Elastic Wrists and Ankles XS-5X, White 25/cs, 12 lb / 5.4 kg</p> <p>ProVent 12,000 <i>Serged</i> – PNSC1 KN Knit Cuffs, No Elastic XS-5X, Yellow 25/cs, 16 lb / 7.2 kg</p>	 <p>Zipper Front with Storm Flap, Attached Hood, Elastic Back Waist, Elastic Wrists, Ankles and Face Opening</p> <p>ProVent 7000 <i>Serged</i> – P7S428 XS-5X, White 25/cs, 12 lb / 5.4 kg</p> <p>ProVent 10,000 <i>Serged</i> – MSE38 CE Type 5,6 XS-5X, Blue or White 25/cs, 19 lb / 5.4 kg</p> <p><i>Ultrasonic/Taped</i> – MNH38 XS-5X, Blue or White 25/cs, 17 lb / 7.7 kg</p>	 <p>Zipper Front, Attached Hood and Skid Resistant Bottom, Elastic Wrists and Face Opening</p> <p>ProVent 7000 <i>Serged</i> – P7S414 XS-5X, White 25/cs, 12 lb / 5.4 kg</p>	 <p>Zipper Closure with Storm Flap, Attached Hood, Elastic Back Waist, Elastic Wrists, Ankles and Face Opening, Attached Skid Resistant Bottom</p> <p>ProVent 10,000 <i>Serged</i> – MSE36 XS-5X, Blue or White 25/cs, 13 lb / 5.9 kg</p> <p><i>Ultrasonic/Taped</i> – MNH36 XS-5X, Blue or White 25/cs, 13 lb / 5.9 kg</p>
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Gowns

 <p>Wrap-Around Gown, Two Neck Ties, Two Waist Ties, Knit Cuffs, Non-Sterile</p> <p>ProVent 7000 <i>Serged</i> – LS112 2H XS-5X, White 30/cs, 16 lb / 7.2 kg</p> <p>ProVent 12,000 <i>Serged</i> – PNSM1 XS-5X, Yellow 30/cs, 16 lb / 7.2 kg</p>	 <p>Wrap-Around Gown, Hook and Loop Neck Closure, Two Waist Ties, Knit Cuffs, Non-Sterile</p> <p>ProVent 7000 <i>Serged</i> – LS101 XS-5X, White 30/cs, 15 lb / 6.8 kg</p> <p>ProVent 10,000 <i>Ultrasonic</i> – MN101 XS-5X, Blue or White 30/cs, 18 lb / 8.2 kg</p>	 <p>Wrap-Around Gown, Two Neck Ties and Two Waist Ties, Elastic Wrists, Non-Sterile</p> <p>ProVent 7000 <i>Serged</i> – LS112 XS-5X, White 50/cs, 17 lb / 7.7 kg</p>	 <p>Open Back Gown, Hook and Loop Neck Closure, Waist Ties, Knit Cuffs, Non-Sterile</p> <p>ProVent 10,000 <i>Ultrasonic</i> – MN108 XS-5X, Blue or White 30/cs, 16 lb / 7.2 kg</p>
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Zytron[®]

Chemical Protection

When it comes to protection, we've got your number.

The concept of an apparel matrix is pure Kappler innovation – a simple system to identify protection levels. Today, the legacy continues with Zytron[®] – unsurpassed protection, an easy-to-use numbering system, and distinctly colored garments for clear identification. Zytron. One look and you'll see we've got you covered.



Be sure with ChemScan[™] garment labels.

Just scan the label with your mobile phone's QR reader for immediate access to a complete list of chemicals tested against your garment's protective fabric. Quick, accurate and only from Kappler – another industry first.





Zytron 100

Zytron 100 garments provide excellent physical strength and basic chemical resistance. Ideal for applications where workers need protection from dry particulates and light splash. Color is Yellow.

Zytron 100XP

Zytron 100XP is a tougher version of Z100 – the same excellent chemical holdout with stronger physical properties. Color is Blue.



Zytron 200

Zytron 200 ups the protection level through increased resistance to a wider range of chemicals and greater physical strength which is especially valuable in applications where rip-out is a concern. Color is Gray.

Zytron 300

Zytron 300 is ideal for demanding applications where there is potential for chemical splash. Increased physical strength and even broader chemical holdout take the protection level up a serious notch. Color is Tan.



Zytron 400

Zytron 400 is one tough customer, with excellent physical properties. It's also a bargain by comparison, with a broad range of chemical protection typically found in garments costing much more. Color is Dark Green.

Zytron 500

Zytron 500 is top of the class – and the classic responder choice. It's tough, built for mobility, and based on patented technology that created the first material to survive eight full hours against the ASTM F1001 Test Battery with no breakthrough. With that kind of Kappler heritage built into the fabric, it's no wonder that responders around the world trust Z500 garments for ultra-demanding Level A and Level B applications. Available in coveralls and a range of total encapsulating suits. Color is Orange or Charcoal Gray.



Zytron 100

Zytron 100XP

Zytron 200

Zytron 300

Zytron 400

Zytron 500 Charcoal

Zytron 500 Orange

For available styles see page 8.

For detailed technical and chemical data see page 14.

Zytron®

The Last Word On Protection.
From The First Name In Innovation.

Zytron®

Chemical Protection | Available Styles

Coverall



Zipper Front, Collar

Zytron 100
Serged – Z1S412
XS-5X, Yellow
12/cs, 12 lb / 5.4 kg

Bound – Z1B412
XS-5X, Yellow
12/cs, 13 lb / 5.9 kg

Zytron 100XP
Serged – Z1S412XP
XS-5X, Blue
12/cs, 12 lb / 5.4 kg

Bound – Z1B412XP
XS-5X, Blue
12/cs, 13 lb / 5.9 kg

Zytron 200
Bound – Z2B412
XS-5X, Gray
12/cs, 15 lb / 6.8 kg

Heat Sealed/Taped – Z2H412
XS-5X, Gray
6/cs, 10 lb / 4.5 kg

Zytron 300
Heat Sealed/Taped – Z3H412
XS-5X, Tan
6/cs, 10 lb / 4.5 kg



Zipper Front, Attached Hood and Boots, Elastic Wrists and Face Opening

Zytron 100
Serged – Z1S414
XS-5X, Yellow
12/cs, 14 lb / 6.4 kg

Bound – Z1B414
XS-5X, Yellow
12/cs, 16 lb / 7.3 kg

Zytron 100XP
Serged – Z1S414XP
XS-5X, Blue
12/cs, 14 lb / 6.4 kg

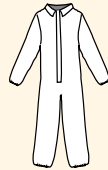
Bound – Z1B414XP
XS-5X, Blue
12/cs, 16 lb / 7.3 kg

Zytron 200
Bound – Z2B414
XS-5X, Gray
12/cs, 18 lb / 8.2 kg

Heat Sealed/Taped – Z2H414
XS-5X, Gray
6/cs, 9 lb / 4.1 kg

Zytron 300
Heat Sealed/Taped – Z3H414
XS-5X, Tan
6/cs, 11 lb / 5 kg

Zytron 400
Heat Sealed/Taped – Z4H414
XS-5X, Green
6/cs, 11 lb / 5 kg



Zipper Front, Collar, Elastic Wrists and Ankles

Zytron 100
Serged – Z1S417
XS-5X, Yellow
12/cs, 11 lb / 5 kg

Bound – Z1B417
XS-5X, Yellow
12/cs, 11 lb / 5 kg

Zytron 100XP
Serged – Z1S417XP
XS-5X, Blue
12/cs, 11 lb / 5 kg

Bound – Z1B417XP
XS-5X, Blue
12/cs, 11 lb / 5 kg

Zytron 200
Bound – Z2B417
XS-5X, Gray
12/cs, 8 lb / 3.6 kg

Heat Sealed/Taped – Z2H417
XS-5X, Gray
6/cs, 8 lb / 3.6 kg

Zytron 300
Heat Sealed/Taped – Z3H417
XS-5X, Tan
6/cs, 10 lb / 4.5 kg

Zytron 400
Heat Sealed/Taped – Z4H417
XS-5X, Green
6/cs, 14 lb / 6.4 kg

Zytron 500
Double Storm Flap with Hook and Loop Closure
Heat Sealed/Taped – Z5H417
XS-5X, Orange or Charcoal
3/cs, 7 lb / 3.2 kg



Zipper Front, Attached Hood, Elastic Wrists, Ankles and Face Opening

Zytron 100
Serged – Z1S428
XS-5X, Yellow
12/cs, 12 lb / 5.4 kg

Bound – Z1B428
XS-5X, Yellow
12/cs, 12 lb / 5.4 kg

Zytron 100XP
Serged – Z1S428XP
XS-5X, Blue
12/cs, 12 lb / 5.4 kg

Bound – Z1B428XP
XS-5X, Blue
12/cs, 12 lb / 5.4 kg

Zytron 200
Bound – Z2B428
XS-5X, Gray
12/cs, 16 lb / 7.3 kg

Heat Sealed/Taped – Z2H428
CE Type 3, XS-5X, Gray
6/cs, 9 lb / 4.1 kg

Zytron 300
Heat Sealed/Taped – Z3H428
CE Type 3
XS-5X, Tan
6/cs, 10 lb / 4.5 kg

Zytron 400
Heat Sealed/Taped – Z4H428
CE Type 3
XS-5X, Green
6/cs, 17 lb / 7.7 kg

Zytron 500
Heat Sealed/Taped – Z5H428
CE Type 3
XS-5X, Orange or Charcoal
3/cs, 7 lb / 3.2 kg



Zipper Front, Attached Hood, Elastic Wrists and Face Opening, Attached Sock Boots with Boot Flap

Zytron 200
Heat Sealed/Taped – Z2H426
CE Type 3
XS-5X, Gray
6/cs, 9 lb / 4.1 kg

Zytron 300
Heat Sealed/Taped – Z3H426
CE Type 3
XS-5X, Tan
6/cs, 11 lb / 5 kg

Zytron 400
Heat Sealed/Taped – Z4H426
CE Type 3
XS-5X, Green
6/cs, 11 lb / 5 kg

Zytron 500
Heat Sealed/Taped – Z5H426
CE Type 3, XS-5X, Orange or Charcoal
3/cs, 8 lb / 3.6 kg

Other Styles



Bib Trouser

Adjustable Webbing Straps with Snap Lock Closure

Zytron 300
Heat Sealed/Taped – Z3H660
XS-5X, Tan
6/cs, 8 lb / 3.6 kg

Zytron 400
Heat Sealed/Taped – Z4H660
XS-5X, Green
6/cs, 10 lb / 4.5 kg

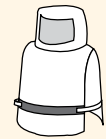


Jacket

Zipper Front, Elastic Wrists

Zytron 300
Heat Sealed/Taped – Z3H670
XS-5X, Tan
6/cs, 7 lb / 3.2 kg

Zytron 400
Heat Sealed/Taped – Z4H670
XS-5X, Green
6/cs, 10 lb / 4.5 kg



Hood

Waist Length Dickie with Hook and Loop Closure, PVC Faceshield

Zytron 300
Heat Sealed/Taped – Z3H750
One Size, Tan
6/cs, 6 lb / 2.7 kg

Zytron 400
Heat Sealed/Taped – Z4H750
One Size, Green
6/cs, 6 lb / 2.7 kg



Boot Cover

Knee-High, Elastic Top

Zytron 200
Bound – Z2B017
One Size, Gray
100 prs/cs, 18 lb / 4.1 kg

Storm Flap Notes:

Serged Seam coveralls do not have a storm flap.

Bound Seam coveralls have a single storm flap with a pressure sensitive tape closure.

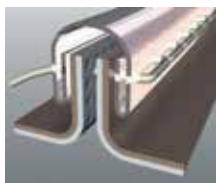
Heat Sealed/Taped Seam garments have a double storm flap with hook and loop closure.

Kappler Seam Types

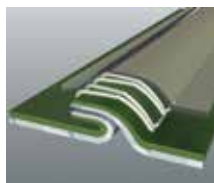
The best protective garments in the world are useless without strong, tight seams. Just one loose thread or gap, and the barrier of protection can unravel and leave you vulnerable to injury – or worse. Kappler offers four different seam types for its protective garments. Depending on the fabric and final application, users may specify: Serged seams for general protection; Bound seams in the mid-range; Heat Sealed/Taped seams for high-end chemical protection; and Ultrasonic seams for biohazard or nuclear applications.



Serged



Bound



Heat Sealed / Taped

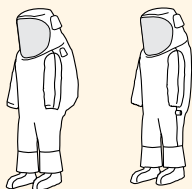


Ultrasonic



All hooded coverall styles have the exclusive LongNeck™ design with extended neck protection.

Totally Encapsulating Suits



Splash Total Encapsulating Suit

Rear Entry, Expanded Back or Flat Back, Large-View PVC Face Shield, 1 Exhaust Port, Elastic Wrists, Attached Sock Boots with Boot Flap, Single-Taped Seams, Double Storm Flap with Hook and Loop Closure, Cloth Zipper

Zytron® 200

Rear Entry, Bound
Z2B571
Expanded Back
XS-5X, Gray • 6/cs, 15 lb / 6.8 kg

Rear Entry, Heat Sealed/Taped
Z2H571 – Expanded Back
XS-5X, Gray • 6/cs, 19 lb / 8.6 kg

Rear Entry, Bound
Z2B371
Flat Back, Side Air Inlet
XS-5X, Gray • 6/cs, 11 lb / 5 kg

Rear Entry, Heat Sealed/Taped
Z2H371 – Flat Back, Side Air Inlet
XS-5X, Gray • 6/cs, 12 lb / 5.4 kg

Zytron 300

Rear Entry, Heat Sealed/Taped
Z3H571 – Expanded Back
XS-5X, Tan • 6/cs, 20 lb / 9 kg

Rear Entry, Heat Sealed/Taped
Z3H371 – Flat Back, Side Air Inlet
XS-5X, Tan • 6/cs, 14 lb / 6.4 kg

Zytron 400

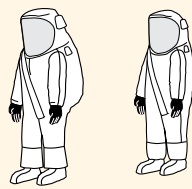
Rear Entry, Heat Sealed/Taped
Z4H571 – Expanded Back
XS-5X, Green • 6/cs, 22 lb / 10 kg

Rear Entry, Heat Sealed/Taped
Z4H371 – Flat Back, Side Air Inlet
XS-5X, Green • 6/cs, 16 lb / 7.2 kg

Zytron 500

Rear Entry, Heat Sealed/Taped
Z5H571 – Expanded Back
XS-5X, Orange or Charcoal
1/cs, 7 lb / 3.2 kg

Rear Entry, Heat Sealed/Taped
Z5H371
Flat Back, Side Air Inlet
XS-5X, Orange or Charcoal
1/cs, 7 lb / 3.2 kg



Vapor Total Encapsulating Suit

Front Entry or Rear Entry, Expanded Back or Flat Back, Large-View PVC Face Shield, 2 Exhalation Valves, 48" (122 cm) Gas-Tight PVC Zipper, Double Storm Flap with Hook & Loop Closure, Attached Sock Boots with Boot Flap, Field Replaceable Butyl Gloves. HazMat Styles Include Barrier Glove Liners

Zytron 500

Front Entry, Heat Sealed/Taped
Z5H550
Expanded Back
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg

Rear Entry, Heat Sealed/Taped
Z5H551
Expanded Back
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg

HazMat Front Entry, Heat Sealed/Taped
Z5H580 – CE Type 1a
Expanded Back

Double Sealed Seams, FEP Face Shield Overlay, Knee Reinforcements, 2N1™ Glove System
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg

HazMat Rear Entry, Heat Sealed/Taped

Z5H581
Expanded Back
Double Sealed Seams, FEP Face Shield Overlay, Knee Reinforcements, 2N1™ Glove System
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg

Front Entry, Heat Sealed/Taped
Z5H350
Flat Back, Must specify pass-thru option
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg

Rear Entry, Heat Sealed/Taped
Z5H351
Flat Back, Must specify pass-thru option
XS-5X, Orange or Charcoal
1/cs, 9 lb / 4.1 kg



Training Suit

Front Entry or Rear Entry, Expanded Back, Large-View PVC Face Shield, 1 Exhaust Port, 48" Zipper, Storm Flap with Hook and Loop Closure, Attached Sock Boots with Boot Flap, Sewn Seams, Sewn on PVC Gloves

Zytron 500

Front Entry, Serged
Z5S555
XS-5X, Orange or Charcoal
1/cs, 7 lb / 3.2 kg

Rear Entry, Serged
Z5S556
XS-5X, Orange or Charcoal
1/cs, 7 lb / 3.2 kg

PVC

Front Entry, Serged
PV5555
SM-4X, Yellow
1/cs, 10 lb / 4.5 kg

NFPA Certified Garments - 1992/2012 Edition

Made with Zytron 300 Fabric



Elastic Hood Opening with special design for better fit against respirator, with Attached Gloves and Sock Boots. Front Zipper extends diagonally across chest up into hood for easier donning/doffing. Zipper opening has double overlapping Storm Flap with Hook and Loop closure. Sock Boots with Splash Guards (worn inside outer work boots). Boot splash guards have elastic edge. Glove System permanently attached to sleeves: Z3H427-92 has Double Glove System with Neoprene Outer Glove and Film Inner Glove; Z3H437-92 has single Neoprene Glove.

Front Entry, Heat Sealed/Taped
Z3H427-92 (double glove)
Z3H437-92 (single glove)
XS-5X, Tan
6/cs, 9 lb / 4.1 kg



Front Entry or Rear Entry Totally Encapsulating Suit, Expanded Back, 40 mil PVC lens, Attached Neoprene Gloves, Sock Boots with Boot Flaps, 2 Exhaust Valves.

Rear Entry, Heat Sealed/Taped
Z3H576-92, XS-5X
Tan, 6/cs,
9 lb / 4.1 kg



Front Entry, Heat Sealed/Taped
Z3H577-92, XS-5X
Tan, 6/cs,
9 lb / 4.1 kg



Front Entry with Expanded Back, Double-Heat Sealed/Taped Seams, Large-View 40 mil PVC Face Shield with FEP Overlay, 2 Exhalation Valves, 48" (122 cm) Gas-Tight PVC Zipper, Double Storm Flap with Hook and Loop Closure, Attached Sock Boots with Boot Flap, Field Replaceable 2N1™ Glove System includes Butyl Gloves with specially attached film liner and knitted removable Kevlar overglove.

Front Entry, Vapor Total Encapsulating Suit
Z5HTN-C2
XS-5X*
Orange or Charcoal
1/cs, 9 lb/4.1 kg

* See sizing note on back cover of catalog.



Frontline®

Chemical/FR Protection

Multiple protection levels in single-skin apparel.

Those who work in hazmat response or petrochemical environments know that protection against chemical flash-fires is a must. That's why Kappler developed the Frontline family of fabrics, with a combination of broad chemical holdout plus flash-fire protection. Whether you need "splash and flash" protection or you're facing a full-blown Level A situation, Frontline offers a solution that's right for the job.



For detailed technical and chemical data see page 14.



You can be sure with ChemScan™ labels.

Just scan the label with your mobile phone's QR reader for immediate access to a complete list of chemicals tested against your garment's protective fabric. Quick, accurate and only from Kappler – another industry first.



Pyroman Testing:

Inside-The-Suit Performance Tells The Real Story.



Because of Kappler's commitment to user survivability, we go beyond the requirements of NFPA 1991 with whole suit testing. Kappler garments designed to protect against a chemical flash-fire are subjected to intense testing in order to simulate real world exposure. Chemical flash-fires are known to generate heat up to 1900°F. The Pyroman Thermal Manikin test at North Carolina State University produces this environment for 6 seconds in order to predict a percentage of body burn a wearer might experience. Sensors on the manikin indicate not only the area of the body affected, but also predict severity of the burn.

Frontline® 500 performed exceptionally well in both measurements, with 0% body burn indicated. Frontline® 300 also performed exceptionally well, with less than 1% body burn indicated. Furthermore, additional testing has proven Frontline apparel offers radiant heat protection that puts a premium on survivability. To view the dramatic videos of Frontline Pyroman testing visit kappler.com and view the Frontline videos under Resources.

For complete test results contact Customer Service at 1-800-600-4019 or email us at customerservice@kappler.com.

Frontline® 300

A true "Splash and Flash" solution

Frontline® 300 is ideal for petrochemical line break situations. This innovative garment was developed with detailed input from petrochemical Safety Officers. It offers excellent radiant heat protection. And with comparable protection to Kappler's Zytron® 300 chemical apparel, Frontline 300 provides excellent holdout for the most common petrochemical hazards.

The ensemble garment design with hood, jacket and bib pants provides excellent flexibility. The hood and jacket can be removed when not in the hot zone, thereby allowing the individual to ventilate. As with all Kappler apparel, this ensemble is a multi-use, single exposure garment.

Features and Benefits

Ensemble garment for excellent versatility

Hood includes large, expanded-view face shield

Seams are sewn and then heat-sealed/taped

Applications

Petrochemical operations, line maintenance, tank cleaning and refueling situations



Ensemble components also available separately - Contact Kappler Customer Service at 1-800-600-4019.

Frontline 300 Available Styles

3-piece Ensemble

Jacket with Zipper Front, Double Storm Flap with FR Hook and Loop Closure, Cone Inserts at Sleeves.

Bib Trouser with Adjustable Webbing Straps and Snap-Lock Closures.

Hood with Flat Back and FR Hook and Loop Closure and 40 mil PVC Visor. Seams are Heat Sealed/Taped.

F3H630, XS-5X, SI

1 set/cs, 8 lb/ 3.6 kg



2-piece Ensemble

Half-C Jacket with Expanded Back and Front Zipper, Double Storm Flap with FR Hook and Loop Closure, 40 mil PVC Visor, Cone Inserts at Sleeves.

Bib Trouser with Adjustable Webbing Straps and Snap-Lock Closures. Seams are Heat Sealed/Taped.

F3H620, XS-5X, SI

1 set/cs, 8 lb/ 3.6 kg



Coverall

Coverall with Special-Design Hood Opening for better fit against Respirator and Visor, LongNeck™ design with Extended Zipper Closure, Double Storm Flap with Hook and Loop Closure, Cone Inserts at Sleeves. Seams are Heat Sealed/Taped. F3H436 includes attached sock boots.

F3H429 (CE Type 3), XS-5X, SI

2/cs, 9 lb/ 4.1 kg



Frontline® 500

NFPA 1991 Certified Single Skin Protection

Now get triple assurance with a single suit certified to NFPA 1991 base plus optional Flash Fire and Liquefied Gas requirements. Frontline® 500 offers three-way protection, including broad chemical holdout plus flame resistance and superior radiant heat protection for the additional hazards encountered in a chemical flash-fire.

Kappler's single-suit design means goodbye to the days of a cumbersome two-suit NFPA 1991 configuration. As with all Kappler apparel, this is a multi-use, single exposure garment. Offering comparable protection to Kappler's Zytron® 500 chemical apparel, Frontline 500 provides excellent holdout for the ASTM F1001 battery and beyond.

For optimal radiant heat protection, Kappler's commitment to user survivability led us to use the more demanding Pyroman Thermal Manikin testing in addition to the NFPA 1991 Chemical Flash Fire Option. Pyroman results for Frontline 500 indicated 0% body burn – a huge confidence factor when facing a chemical flash situation.



Features and Benefits

Single garment eliminates need for typical 2-suit NFPA 1991 configuration

Combines chemical, flash-fire and radiant heat protection in a single suit

Seams are sewn and double heat-sealed/taped for added protection

Large expanded-view face shield improves field of vision

Unique 2N1™ glove system prevents inner glove inversion when removing hands

Applications

Hazmat response and chemical handling with potential for chemical flash-fire

Frontline 500 Available Styles

Vapor Total Encapsulating Suit

Front Entry, Expanded Back, Large PVC view window with FEP Overlay, Double sealed seams, Knee reinforcements, 2 exhalation valves, 48" Gas-Tight PVC Zipper, Double Storm Flap with Hook and Loop closure, attached Sock boots with Boot Flap, Field replaceable 2N1™ Glove System includes Butyl Gloves with specially attached field liner and knitted removable Kevlar overglove.

F5H580-91, F5H580-9C (CE Type 1aET) and

F5H580-9Z (Reverse Pull Zipper)

XS-5X, SI w/hi-vis. Orange Taped Seams

1/cs, 12 lb/ 3.6 kg



Caution: Do not use for fire fighting protection. Frontline garments are designed for escape purposes only. Avoid open flame or intense heat.

Specialty Products

And Accessories

When it comes to accessories, details make the difference and Kappler innovation comes through with a wide range of specialty products. If you need something that supports your protective apparel, Kappler has a proven solution.

Kappler's Digital Pressure Test Kit is easy to use and extremely accurate.

Kappler's automated Digital Pressure Test Kit improves the efficiency and accuracy of gas-tight garment tests for both ASTM and CE methods. Kappler's unique design features a digital readout for more accurate testing, while a large LCD touchscreen allows easy test criteria selection and data input. All fittings and hoses needed to connect a garment for testing are included in the kit – the user simply provides an air supply with a 1/4 inch MNPT fitting.

Press START and the test is performed automatically, allowing the user to handle other duties while the test is in process. For easy and accurate record-keeping, test data can be copied to the provided USB stick via the built-in USB port. Complete operating instructions are included and also available at kappler.com under Resources along with a video demonstration. Style AKMOC.



2N1™ Glove System features a unique liner system that prevents inner glove inversion when removing hands.

Kappler's 2N1™ Glove System solves a common, persistent problem for chemical suit users. A true innovation, the 2N1 prevents the fingers of the inner liner glove from "inverting" or being pulled inside-out when the user removes a hand from the double-glove configuration common to certain gas-tight garments. This simple yet effective improvement allows the user to easily remove or reinsert the hands into the glove without the annoying inversion. This is especially helpful when a user needs to free the hands while inside the suit, to adjust the respirator face piece or other equipment and clothing. The 2N1 also provides improved comfort and manual dexterity with a double-glove configuration. From the moment you insert your hands, the benefits are obvious and immediate. The 2N1 Glove System from Kappler – where the latest innovation is always in reach. Contact Customer Service for style options.

The 2N1 Glove System comes standard on Kappler Zytron® 500 Hazmat styles, and NFPA Certified styles in both Zytron® 500 and Frontline® 500 fabrics.



Unique installation technique using rigid glove ring allows larger opening, which makes it easier to insert or withdraw hands.

Fingers of inner glove stay in place when hands are removed.



ChemTape®

ChemTape is Kappler's patented chemical-resistant tape designed specifically for protective apparel. Provides added assurance for taping around gloves, boots, respirators and storm flaps, plus shelter-in-place applications. Rolls are 2" X 60 yd (48 mm wide and 55 meters long); 24 rolls per case, style 99402 YW.



Male Glove Insert Cones

Kappler's insert cones interface glove to suit and provide smooth taping surface. 1 pair per case, style AG0AR.

Cooling Vest

The Kappler Cooling Vest with patented Phase Change Material is lightweight and provides hours of cooling. Available in two cooling-capacity sizes, in mesh or FR Cotton. Contact Customer Service for style numbers.



For a complete list of Kappler accessories visit www.kappler.com or call customer service at 1-800-600-4019

ChemTape® Responder ID Kit

Large, easy-to-read identification numbers enhance safety where worker identities are obscured. Self-adhesive, easy to apply, complete set includes numbers 0-9. Style 99415



The ChemTape® Responder ID Kit includes easy-to-apply identification numbers to enhance worker safety.

Technical Data

Chemical And Physical

ASTM F1001 Chemical Test Battery*									
CHEMICAL	Zytron®						Frontline®		ChemTape®
	100	100XP	200	300	400	500	300	500	
Acetone	NT	NT	17	>480	>480	>480	>480	>480	>480
Acetonitrile	NT	NT	52	87	>480	>480	>480	>480	>480
Carbon Disulfide	NT	NT	2	>480	>480	>480	>480	>480	>480
Dichloromethane	NT	NT	2	70	88	>480	10	253	>480
Diethylamine	NT	NT	21	>480	>480	>480	>480	>480	160
Dimethylformamide	NT	NT	77	>480	>480	>480	>480	>480	>480
Ethyl Acetate	NT	NT	14	>480	>480	>480	>480	>480	>480
n-Hexane	NT	NT	7	>480	>480	>480	>480	>480	>480
Methyl Alcohol	NT	NT	>480	55	>480	>480	>480	>480	>480
Nitrobenzene	NT	NT	97	>480	>480	>480	>480	>480	>480
Sodium Hydroxide	>480	>480	>480	>480	>480	>480	>480	>480	>480
Sulfuric Acid	>480	>480	>480	>480	>480	>480	>480	>480	>480
Tetrachloroethylene	NT	NT	21	>480	>480	>480	>480	>480	>480
Tetrahydrofuran	NT	NT	3	>480	>480	>480	>480	>480	>480
Toluene	NT	NT	6	>480	>480	>480	>480	>480	>480
GASES									
Ammonia Gas	NT	NT	NT	39	NT	>480	>480	>480	NT
1,3 Butadiene	NT	NT	NT	>480	NT	>480	>480	>480	NT
Chlorine Gas	NT	NT	NT	>480	NT	>480	>480	>480	NT
Ethylene Oxide Gas	NT	NT	NT	81	305	>480	>480	>480	NT
Hydrogen Chloride Gas	NT	NT	NT	>480	NT	>480	NT	>480	NT
Methyl Chloride Gas	NT	NT	NT	>480	NT	>480	NT	>480	NT

* Normalized breakthrough times in minutes in accordance with ASTM F 739.

Note: Sources for all chemical test data are independent laboratories. All tests were performed under laboratory conditions and not under actual use conditions. Tests were performed on material samples, not actual garments. All chemicals tested at 95% and 75° F except Sodium Hydroxide, tested at 50%.

Warning: There are uses, environments and chemicals for which Kappler garments and/or fabrics are unsuitable. It is the responsibility of the user to review available data and verify that the garment and/or fabric is appropriate for the intended use and meets all specified government and/or industry standards.

Need A Specific Chemical Tested?

Know before you buy with Kappler's free testing program.

If you need to document a Kappler fabric against a specific chemical hazard not already in our database, we make it easy with a custom testing program. We'll conduct third-party testing on your chemical, and if the fabric meets your requirements you agree to purchase a standard minimum number of garments. For details contact Customer Service at 1-800-600-4019 or customerservice@kappler.com.

Data you can count on – get complete chemical test results at kappler.com

The test results shown here represent only a fraction of the chemicals tested against Kappler fabrics – a list that's constantly being expanded. Visit HazMatch® at kappler.com for the latest list of chemicals in the Kappler database.



Chemical Warfare Agent Data

CHEMICAL AGENT	Zytron®300		Zytron®500		Frontline®500		ChemTape®	
	Breakthrough		Breakthrough		Breakthrough		Breakthrough	
	Time	Criteria	Time	Criteria	Time	Criteria	Time	Criteria
Bis (2-chloroethyl) sulfide (Mustard:HD)	>480 MINUTES	4.0 ug/cm ²	>480 MINUTES	4.0 ug/cm ²	>480 MINUTES	4.0 ug/cm ²	>480 MINUTES	4.0 ug/cm ²
Isopropyl methylfluorophosphonate (Sarin:GB)	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²
Chlorovinyl arsinedichloride (Lewisite:L)	>240 MINUTES	4.0 ug/cm ²	>480 MINUTES	4.0 ug/cm ²	>240 MINUTES	4.0 ug/cm ²	NT	NT
O-ethyl S-(2-diisopropylaminoethyl) methylphosphonothiolate (Nerve:VX)	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²	>480 MINUTES	1.25 ug/cm ²

Agent testing was conducted at Battelle Labs in accordance with MIL-STD-282 and/or NFPA 1994-2001 Edition Standard on Protective Ensembles for Chemical / Biological Terrorism Incidents.

Typical Physical Properties

TEST METHOD	Zytron®						Frontline®	
	100	100XP	200	300	400	500	300	500
Grab Tensile Strength MD* ASTM D751 (lbs/N)	32 / 142	49 / 217	52 / 231	78 / 347	155 / 689	120 / 534	134 / 595	137 / 608
Grab Tensile Strength CD* ASTM D751 (lbs/N)	24 / 106	38 / 169	39 / 173	69 / 307	152 / 676	121 / 538	125 / 555	166 / 737
Tear Resistance Trapezoid Method MD* ASTM D751 (lbs/N)	11.5 / 51	17.4 / 77	22.9 / 101.8	16.6 / 74	42.2 / 188	35 / 156	13.7 / 61	13.5 / 60
Tear Resistance Trapezoid Method CD* ASTM D751 (lbs/N)	7.4 / 32	10.3 / 45	9.6 / 42.7	22.1 / 98	50.6 / 225	37 / 168	10.7 / 48	14 / 62
Ball Burst ASTM D3787 (lbs/N)	28 / 124	46 / 204	43 / 191	58 / 258	153 / 681	128 / 569	123 / 546	134 / 595
Flammability Resistance ASTM F1358	N/A	N/A	N/A	N/A	N/A	N/A	PASS	PASS

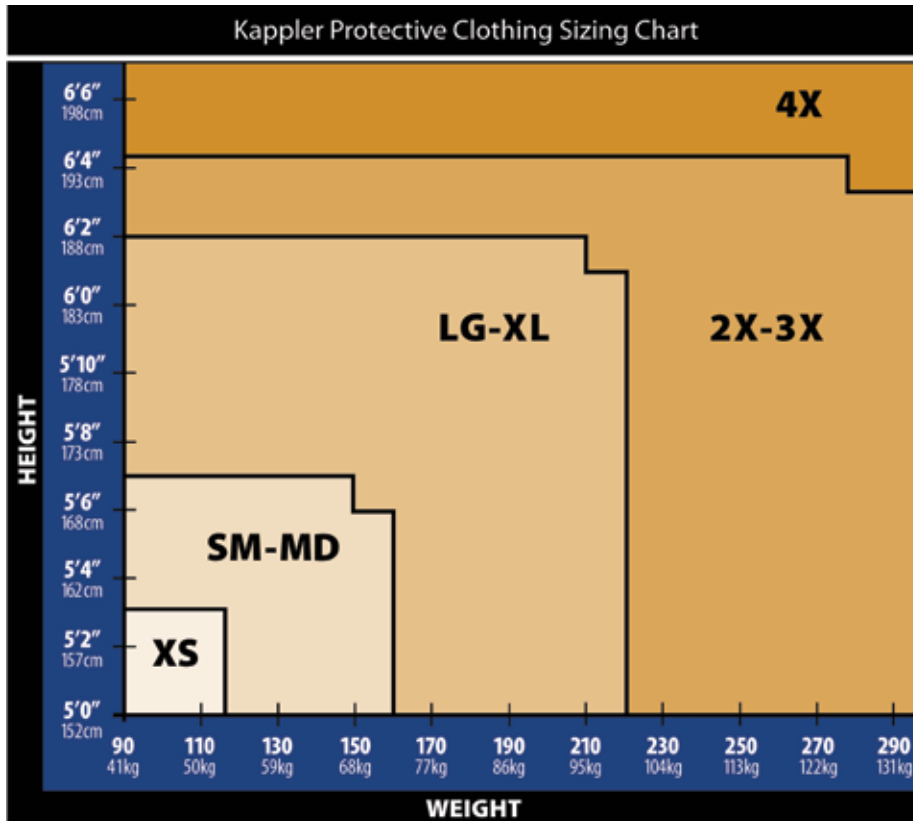
*MD - Machine Direction, CD - Cross Direction



Frontline® 300 was developed based on detailed input from petrochemical Safety Officers, and is ideal for line break applications.

Another Kappler innovation – our sizing system reduces inventory and simplifies your selection process.

Our garments are designed and constructed with the wearer in mind, and that includes sizing that simplifies the decision process. Typically worn over other clothing, Kappler’s garments are designed so that “combination sizes” comfortably fit the vast majority of users. Plus, with only five size options (versus the normal eight), you simplify ordering logistics and reduce inventory requirements.



NOTE: Zyttron 500 style Z5HTN C2 and certain Medical styles use specific sizing (XS, SM, MD, LG, XL, 2X, 3X, 4X and 5X). Please contact customer service for more details.

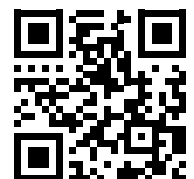
WARNING: This information is based on technical data that Kappler believes to be reliable. It is subject to revision as additional knowledge and experience are gained. The website will contain Kappler’s most up-to-date product information, and customers who receive pamphlets, brochures or other literature should be aware that such “hard copy” information may not be as current as the information on Kappler’s website. Customers also should recognize that there are uses, environments and chemicals for which Kappler products, garments and/or fabrics are unsuitable. It is the responsibility of the user to review available data and verify that the product, garment and/or fabric is appropriate for the intended use and meets all specified government and/or industry standards. Also, the customer should review all available information on the website to understand the uses – and limitations – on ALL products, garments and fabrics which Kappler makes available. **CAUTION:** Do not use for fire protection. Avoid open flame or intense heat.



Know What You’re Getting Into.

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