

## Frontline 500

Fabric Color  
Silver

## NFPA 1991 Certified Apparel For Chemical Flash-Fire Protection.

- Certified to 2016 Edition of NFPA 1991.
- Single suit provides three-way protection – chemical, flash-fire and radiant heat — which eliminates need for two-suit NFPA 1991 configuration.
- Provides excellent “survivability” performance – 0% body burn in Pyroman Thermal Manikin testing.
- Provides economical NFPA alternative to expensive FR reusables.
- New patent-pending AntiFog Expanded-View Visor System (see comparison bottom left).
- Highly flexible Aquaseal® gas-tight zipper makes donning, doffing and pressure testing much easier (photo bottom right).
- Applications: Hazmat response and chemical handling with potential for chemical flash-fire.



# Frontline 500

## ASTM F1001 Chemical Test Battery\*

Chemical	Minutes
Acetone	>480
Acetonitrile	>480
Carbon Disulfide	>480
Dichloromethane	253
Diethylamine	>480
Dimethylformamide	>480
Ethyl Acetate	>480
n - Hexane	>480
Methyl Alcohol	>480
Nitrobenzene	>480
Sodium Hydroxide	>480
Sulfuric Acid	>480
Tetrachloroethylene	>480
Tetrahydrofuran	>480
Toluene	>480
<b>Gases</b>	
Ammonia Gas	>480
1,3 Butadiene Gas	>480
Chlorine Gas	>480
Ethylene Oxide Gas	>480
Hydrogen Chloride Gas	>480
Methyl Chloride Gas	>480

## Chemical Warfare Agent Data\*\*

Chemical Agent	Minutes	Criteria
Bis (2-chloroethyl) sulfide (Mustard:HD)	>480	4.0 ug/cm2
Isopropyl methylfluorophosphonate (Sarin:GB)	>480	1.25 ug/cm2
Chlorovinyl arsenedichloride (Lewisite:L)	>240	4.0 ug/cm2
O-ethyl S-(2-diisopropylaminoethyl) methylphosphonothiolate (Nerve:VX)	>480	1.25 ug/cm2

\* Industrial chemical testing was conducted in accordance with ASTM F 739 with normalized breakthrough times reported in minutes. \*\*Chemical Warfare Agent testing was conducted in accordance with MIL-STD-282 and/or NFPA 1994-2001 with breakthrough times reported based on total cumulative permeation. For detailed technical data and physical properties see page 30 or visit kappler.com.

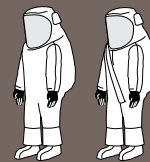
**WARNING:** This information is based on technical data that Kappler believes to be reliable. It is subject to revision as additional knowledge and experience are gained. The website will contain Kappler's most up-to-date product information, and customers who receive pamphlets, brochures or other literature 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.



New patent-pending AntiFog Expanded-View Visor System (standard on style F5H582-91 shown).

# Frontline® 500



Shown above are typical garment types for this fabric. View standard styles at [kappler.com](http://kappler.com) or call Customer Service for custom options.



**ChemScan® labels – quick, accurate and only from Kappler.** Scan the label with your phone's QR reader for a complete list of chemicals tested against your garment's protective fabric.

Removable knitted Kevlar overglove, plus field-replaceable 2N1® Glove System which eliminates the problem of inner glove inversion.

48" gas-tight Aquaseal® zipper facilitates easier donning, doffing and pressure testing.

## Frontline 500 Heat, Flame and Thermal Test Data

Frontline 500 has been tested for thermal protective performance (TPP) in accordance with ISO 17492, Clothing for Protection Against Heat and Flame, and showed a TPP value of 32.

Frontline 500 meets the requirements for flame resistance in accordance with ASTM F1358.

Frontline 500 meets requirements of NFPA 1991, including base requirements plus optional Flash-Fire and Liquefied Gas requirements.

Frontline 500 has been tested in accordance with ASTM F 1930-00 Standard Test Method for Evaluation of Flame Resistant Clothing for Protection Against Flash Fire Simulations Using an Instrumented Manikin. The Frontline 500 ensemble garment indicated less than 0% body burn after a six-second burn test.

**Frontline garments are designed for chemical flash-fire protection FOR ESCAPE ONLY in the event of a chemical flash fire.**



Scan this QR code for a dramatic video of the Pyroman flame test on the Frontline® Chemical/FR suit shown here.

MM-0014 / 20KAP087 / APR20 / 1K