



# Kappler<sup>®</sup>

***Know What You're Getting Into.***

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## **Product Specification**

Frontline<sup>®</sup> 500

Style: F5H582 91

Vapor and Liquid Splash Protective Total Encapsulating

NFPA 1990 (1991) 2022 Edition



### **Design Requirements**

1. The garment shall be constructed from a composite fabric comprised of a metallized polyester chemical barrier film laminated to one side of a flame-resistant non-woven substrate with an additional chemical barrier film laminated on the other side. A heat blocking and flame-resistant adhesive is used in the lamination. Color is reflective silver.
2. Outer seams shall be stitched with flame-resistant thread and covered with high visibility orange heat sealed seam tape on outside of the seam and two layers of white tape on the inside. The seam tape used to cover the seams shall be of a similar composition as the films used in the base fabric.
3. The garment shall be a front entry, expanded back design with a 48" gas tight urethane coated zipper. The zipper shall have heavy-duty molded nylon teeth. Overlapping double storm flaps made of the base fabric shall cover the zipper. The storm flaps shall have hook and loop fasteners.
4. The expanded view visor shall be made of a 5 mil FEP overlay, 40 mil FR PVC and an anti-fog treated layer inside for improved visual acuity.
5. The expanded backpack of the garment shall be sized to accommodate a SCBA.

6. The 2N1™ multilayer composite glove system shall be attached to the garment with a ring and clamp. The removable outer glove is Nomex/leather.
  7. The garment shall contain an internal 2" waist belt system for support and improved fit.
  8. The garment shall be constructed with two one-way exhaust valves. The exhaust valve flappers shall be of a ridged design. The exhaust valves shall contain a special molded cover to improve vapor intrusion resistance. Valves shall be protected from splash by valve covers made of the garment material.
  9. The garment shall have knee reinforcements.
  10. The garment shall be constructed with sock booties made from Zytron®500 chemical barrier fabric to improve comfort and fit with a chemical over boot. The boot area shall be covered by a splash guard made of the garment material.
  11. Garment is packed one per case, in a reusable storage bag with carrying handles. Bag shall have zipper closures and is marked with Kappler logo.
1. The garment may be constructed with a pass-thru based on an option selected below.
  2. Combination Sized Garment: XS, SMMD, LGXL, 2X3X, 4X and 5X.

### Optional Design Requirements (some may be combined)

- **OPTION BC:** The garment shall comply with the Berry Amendment
- **OPTION 7M:** MSA Dual Pass-thru
- **OPTION 7N:** MSA Quick-Fill Pass-thru
- **OPTION 7S:** Scott Hansen Pass-thru
- **OPTION 7T:** Scott Shrader Pass-thru
- **OPTION 7X:** Honeywell Pass-thru
- **OPTION PN:** MSA Quick-Fill Pass-thru, provided by the customer

### Performance Requirements

1. Garment shall be certified to NFPA 1990 (1991), 2022 edition, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*, including optional liquefied gas and chemical flash fire protection. This standard includes CBRN protection performance requirements for Terrorism Incidents.
2. Garment shall be tested to ASTM F1930, *Test Method for Evaluation of Flame Resistant Clothing for Protection Against Flash Fire Simulations Using an Instrumented Manikin*, and exhibit zero percent body burn during a six second exposure.
3. Garment fabric shall be tested to ISO 17492, *Clothing for Protection against Heat and Flame*, and exhibit a thermal protective performance (TPP) value of 32.
4. Garment fabric shall be tested to ASTM F739, *Standard Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact*, and exhibit no breakthrough for at least eight hours against a minimum of 180 chemicals.
5. Garment shall be tested to ASTM F1052, *Standard Test Method for Pressure Testing Vapor Protective Suits*

## Compliance Requirements

1. For compliance with NFPA 1990 (1991) 2022 Edition, the following components must be worn:
  - a. Compatible NIOSH approved respiratory protection
  - b. The removable outer glove listed above
  - c. Protective outer boots

## Service Requirements

1. The manufacturer shall have the HazMatch® technical information support system that includes an online and app based software selection program. The app based software can be found at the Apple Store or on Google Play.
2. The garments shall have a logo that indicates sizing and includes the ChemScan™ QR code that provides real time access to chemical test data for the fabrics.
3. The garments shall be manufactured in the USA.
4. The manufacturer shall have a 24-hour emergency contact number for special response need.

### Warning

The information contained herein is based on technical data that Kappler believes to be reliable. It is subject to revision as additional knowledge and experience are gained. Please visit our website at [www.Kappler.com](http://www.Kappler.com) ("Kappler Website") for the most up to date product information and specifications. All pamphlets, brochures or other literature or printed material may contain information that is not as current as the information on Kappler's website. Additionally, there are uses, environments and chemicals for which Kappler products, garments and/or fabrics are unsuitable. The user has the responsibility to review all available data and verify the product, garment and/or fabric is appropriate for the intended use and meets all specified government and/or industry standards for such use. The user should review all available information on the Kappler Website, product labels and QR codes to understand the appropriate uses and limitations of Kappler products, garments and fabrics.

***CAUTION: Do not use for fire protection. Avoid open flame or intense heat.***

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