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## **TECHNICAL SERVICES DOCUMENT**

### **Shelf/Storage Life on Kappler® Protective Garments (Revision 01/2023)**

Shelf/storage life is typically quoted for products or materials which contain components that are expected to degrade and/or lose their performance effectiveness over time.

Under proper storage conditions, stored away from direct sunlight, preferably in a cool, dry location that is not subjected to extreme hot or cold conditions, there is no evidence to indicate the Zytron® or Frontline® film composite fabrics lose their protective characteristics or physical properties over time. This conclusion is based on the naturally aged Zytron® fabric over the last twenty years. Twenty- year-old Zytron® 500 has been tested against the ASTM F1001 list of twenty-one chemicals with no breakthrough in >480 minutes. Aged fabric has also been evaluated for physical properties and still meets manufacturing specifications.

Kappler performs shelf/storage life determinations on garment fabrics, seams, and other components to support market claims and meet the requirements of NFPA 1990-2022 *Standard for Protective Ensembles for Hazardous Materials and CBRN Operations*. The samples selected for testing are typically a combination of those subjected to natural aging and accelerated aging. A limited number of chemicals are evaluated. The Annex A, Explanatory Materials, lists the following methods for consideration during storage life testing and are utilized by Kappler to support our studies:

ASTM F1980-16: Standard Guide for Accelerated Aging of Sterile Barrier Systems for Medical Devices

DLAR (JP) 4155.37: DoD Shelf-Life Material Quality Control Storage Standards

#### **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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After careful consideration and review of available test data on current fabrics and garments, Kappler has decided to establish a more conservative position on shelf/storage life claims regarding these.

This revised shelf/storage life position has been warranted by the following:

- To comply with the requirements of NFPA 1990-2022 regarding a shelf/storage life statement for all certified products involving hazmat and CBRN protection.
- To provide a consistent level of stewardship across all product lines, both certified and non-certified styles.
- To provide more empirical recommendations to authorities having jurisdiction (AHJ's) for retirement of products as suggested by NFPA 1891-2022
- To introduce consistency with other competitive products utilized in the marketplace.

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The shelf/storage life of Kappler fabrics and garments from date of manufacture are as follows:

Zytron®	10 years
Frontline®	10 years
Durachem® 500	10 years
Durachem® 200	5 years *
ProVent® Plus	10 years

This improved shelf/storage life position applies to all garments both certified and non-certified beginning January 24, 2023. Any fabrics or garments manufactured prior to this date will maintain the previous shelf/storage lives.

\*The shelf life of Durachem 200 is still under review and study. This effort will be completed in 2023 and our goal is to provide a 10-year shelf/storage life.

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