



**Never Before Available
The One & Only!
All Fire Class Protection
(ABCDK) & More...
Ready For Full Military
Deployment**

The Predator™ FFC

"A FireStopper® Premix"
(Exclusive to FireStopper® TM Systems)

EPA 1633 ★★

& More...

FireStopper Marketing Department
WHITE PAPER



FIRESTOPPER®
Industrial - Commercial
Government



Preface

FireStopper® International Limited, a transnational Registered Company, is the developer of the most advanced and powerful firefighting technology in the “World. By design, FireStopper® has engaged in over 30-years of R&D, which has demonstrated superior stand-alone third-party testing resulting in stand-alone ratings and certifications awarded by the most recognized and respected third-party testing and Approvals facilities in the world.

*Moreover, this unique Technology has rendered the only available all fire-class and subclass effectiveness to include anti-explosive products, which are all **Non-Toxic, Non-Irritant, Environmentally Safe, and Non-Hazardous** over all other existing and available products in the fire and safety channel of business.*

Having proven the former statement through the outstanding results of the products testing, rating, and certifications thus received, FireStopper®, in tandem with its novel firefighting and anti-explosion products (the “software”), developed the most durable and reliable supporting hardware and detection systems available today, which also meet and exceed the relative standards used to certify said product lines.

Moreover, the FireStopper® lines of products reach across the full spectrum of safety application to include environmental remediation post spills both onshore and offshore.

In the International arena, the FireStopper® brand is the recipient of the highest certifications in all categories of Governmental requirements to market such as defined below:

Handheld Portable Extinguishers:

*ANSI/UL711, ULC – Southwest Research Institute (San Antonio, TX)
Defense Logistics Agency (DLA) US Gov. NSN Approval #s’*

*EN3-7; EN3-8¹ – MPA, Dresden (Germany)
CE² – DNV*

Firefighting Foam Concentrates:

*EN1568 – MPA Dresden
ICAO – CNPP (France)
IMO – MPA Dresden, Lloyds Registry: DNV & MED
CE*

Environmental Testing:

*NAMSA, USA
Associated Laboratories, CA USA
Environmental Medicine, Inc., USA; OPUS, Ltd., UK*

¹ This Standard refers to hardware durability, reliability and efficacy

² This Mark assures manufacturing quality through yearly inspections

EXECUTIVE SUMMARY

A New Weapon Against All Flammable Events In The Field And In Base

Never before has there been a greater demand for fire protection in everyday occurrences and/or under battlefield environment. The Military service structure can now assign detail responsibility for fire amelioration to designated individuals, general personnel or systems, requiring no special equipment and with minimal training; the eradication of the need for multiple types of extinguishers in order to suppress fire events made of multiple flammable materials is at hand with FireStopper®.

Due to the now available FireStopper® FFC (Fire Fighting Catalyst) Technology, assigned individuals or personnel can effectively and quickly extinguish any fire event returning the affected area quickly & safely to ambient temperature. Fire suppression equipment and/or systems that are tasked with protecting high value personnel and equipment can now be fail safe, thereby enabling the continuation of the intended task or mission.

Advantages Not Feasible or Available Before In Any Other Deployed Products or Fire Safety Technologies:

1. *Effectiveness on all classes and sub classes of fire (the FireStopper® PREDATOR™ FFC is the only product to be certified to deliver full extinguishment of flammable events borne from all flammable materials in existence)*
2. **No PFOA or PFOS (EPA1633)**
3. *DLA approved*
4. *Fast extinguishment (usually within the range of microseconds to under 5-seconds)*
5. *No re-ignition*
6. *Non-Irritant (skin or eyes), Non-Toxic, Non-Aggressive*
7. *Freeze resistant to approx. -99°F (-73°C)*
8. *Usable with all existing fire equipment*
9. *Anti-explosive properties*
10. *No unpleasant odor*
11. *No water supply needed*
12. *A premixed solution ameliorating the need of special equipment, hazardous & ineffective concentrates that may require in the field inaccurate premixing in order to be deployed*
13. *Garments do not require detoxification*
14. *Eliminates the need for expensive foam generating equipment*
15. *Superior performance on all Class A, B, C/E, D³, and K/F fires*
16. *Fully effective on all sub classes of flammables including nuclear related flammables*
17. *Fully effective on marine fires*
18. *Will adhere to surfaces such as fiberglass, etc.*
19. *And more...*

³ Class "D" includes Lithium-ion battery fires

SPECIFICATION/APPLICATION

- ❖ *The PREDATOR™ (FFC) although it purports a foaming capability, it does not depend on its foam to extinguish the fire as AFFFs, F3s', or any other promoted liquid firefighting products. (The Predator™ FFC eliminates the reliance on a foam blanket for class B applications; FFCs' increase in efficacy when deployed through spray nozzles at higher pressure with no specific technique required to apply the product*
- ❖ *Has a water-thin viscosity, making it ideal for fire suppression systems and manual applications*
- ❖ *Designed to fight the broadest range of fires born out of A B C/E D & K/F & subclasses flammable categories whether originating from a singular flammable or composed of multiple types of flammable materials*
- ❖ *pH neutral & usable in all planetary temperature environments*
- ❖ *Safest Human, Animal, & Environment exposure (Non-Toxic, Non-Irritant, Non-Hazardous, & Environmentally Safe)*
- ❖ *Designed to be used against electronic environment fires; rapidly extinguishing the fire event with the minimum volume of product exposure thus preventing collateral damage & spread of the fire event*
- ❖ *Designed to operate in Aviation & Space environments*



ENVIRONMENTAL AND TOXICOLOGY

PREDATOR™ (FFC) The mixture is not an eye or skin irritant and is non-toxic when testing according to the FHSA protocols it shall be judged to pose no chronic health hazard. Under European standards (OECD 306, ISO 14669, ISO 5667-16, and ISO 10253 2006, the FFCs are designed to meet “green” qualifying requirements under HOCNF protocols. The FFCs need no special labeling or chronic health hazard warning statements and follow FHSA regulations, 16 CFR 1500 and California Proposition 65. All FireStopper® liquid firefighting products are EPA1633 Approved

The PREDATOR™ FFC is the only firefighting premix capable of being deployed for all fire emergencies without encountering the following:

- ❖ Special equipment
- ❖ Multiple types of foam concentrate
- ❖ Toxic anti-freeze additives
- ❖ Expensive high expansion equipment
- ❖ Special training of personnel
- ❖ Environmental and human exposure safety precautions

“FireStopper® PREDATOR™ FFC Will Prevent Catastrophic Results Commonly Associated With Aviation, Transportation, Structural, & Equipment Caused Fire Events”

In contrast with AFFF’s standard performance on hydrocarbon fire, the FireStopper® FFC technology accelerates the knockdown and extinguishment of the fire event in the following manner:

- ❖ *Instantly & drastically reduce the fire environment temperature allowing the following:*
 - *Prevention of auto-reignition by the fuel*
 - *Elimination of heat barrier to the firefighting personnel*
 - *AFFF does NOT provide significant temperature reduction. At the contrary, it relies on film formation and foam production to suppress flammable vapors in addition to oxygen deprivation*
- ❖ *FireStopper® chemically interferes with the ability of the hydrocarbon molecule to be flammable*
- ❖ *The FFC vastly reduces the surface tension of the water*
- ❖ ***PREDATOR™** is endothermic and exothermic*
- ❖ *It migrates over the surface seeking the heat of the fire & penetrates to disable the production of volatile vapors*
- ❖ *Other proprietary functions...*

Below please see examples of fire events that produced catastrophic end results to the equipment and onsite personnel:

Fig. 1



Fig. 2



Fig. 3



Fig. 4



COMPLEMENTARY PORTABLE SYSTEMS

Until now, the usual supporting mechanism for fire prevention in transport vehicles, whether aircraft, land based or sea based, is either dry chemical based, AFFF, or gaseous (Halon type). With the advent of this novel Technology, FireStopper® offers the first and only all fire class and sub-class effective line of handheld & portable extinguishers capable of preventing catastrophic fires by ameliorating incipient fire emergencies before they become terminal to life & property.

Example: Using a first-generation FireStopper® hand-held extinguisher

FireStopper® Portable Extinguisher Comparison (Aviation Application)

PFE-101 (400-ml Fog Spry Type Nozzle)

Vs.

H₃R Aviation's Model: RT-A400

(.9-lb Halon 1211-1301 Blend Typical use: Cockpit/Cabin)

**H3R Aviation
Model: RT-A400 –Halon Extinguisher**

Fig.1



1-sec

Fig. 2



8-secs

Fig. 3



14-sec

Fig. 4



17-sec

Comparison Test Conclusion:

The above Halon blend extinguisher, even though it is Approved and Listed to extinguish an AMSI/UL711/NFPA10 2B rating, in a real-world application demonstration test failed dramatically to extinguish the fire.

FireStopper® PFE-101

Fig. 1



1-sec

Fig. 3



4-secs

Fig. 2



2-secs

Fig. 4



5-secs

Comparison Test Conclusion:

The FireStopper® PFE101 containing the 1st generation technology product PFEFR, quickly and effectively extinguished the fire in the open-air environment

Below are some of the advantages PFE-FR FFC provided:

- *This product was designed for use exclusively with FireStopper® trademarked systems and delivers:*
 - *DLA approved*
 - *Full efficacy on all fire class and subclasses*
 - *-99°F freeze resistance while in use without harmful antifreeze additives*
 - *Viscosity: water-thin*
 - *Anti-explosive properties*
 - *Highest ratings in the world both: EN3-7 & UL7-11*
 - *Highest Eco-Safety testing results under HOCNF, and meet or exceed FHSA*

- regulations, 16 CFR 1500 and California Proposition 65
- Ideal for use where extreme cold temperatures may be a factor
 - The ideal product for use in concert with FireStopper® CAC (Compressed Air Catalyst) units; please see CAC Catalog
 - Stainless steel body and components
 - Meet or exceed USCG 1000-hour salt spray requirements
 - Available in small silhouette for cockpit use
 - Available in large volume portable systems for maximum application (please consult the FireStopper® Catalogs for further detail)

Note: the Predator™ FFC is the product contained in all FireStopper® Handheld Portables

*To complete the full safety circle, FireStopper® offers the 2nd Generation **EXP FFC** product; the only true anti-explosion media capable of suppressing hydrogen/methane explosions as tested at the Gexcon, Norway testing facilities. This media is the newest advancement of the FFC product line designed to provide full protection to the Military and Industry against the potential event of explosion and fire.*

Conclusion

Asymmetric warfare and conventional engagements will require a new generation of fire and explosion protection. FireStopper® has developed the deepest variety and most flexible hardware to deploy the most advanced, powerful, reliable and safe array of firefighting and anti-explosion media available in the world. No matter whether it is necessary in a concentrated form for massive use or in a premix format exclusively designed for use through FireStopper® trademarked portable or fixed systems, FireStopper® is ready to deliver...



***“HELPING TO MAKE AMERICA
GREAT AGAIN!”***