



SFFF Range

Products for Synthetic Fluorine Free
Foam systems | APAC





Change-out challenges

In addition to newly constructed installations requiring fixed foam systems, internal company policy or legislation will require end users to move to SFFF³ and as such upgrade existing systems. In the majority of cases, it will not be possible to replace only the foam concentrate. Storage tanks, proportioning and discharge devices will all need to be reviewed and in most cases, changed. Then there are the design aspects to consider such as application densities, supply pressure and flow rates. This could have a knock on effect for the water supply and pipe sizing. If the target is to get to an almost zero level of remaining PFAS based concentrates, then extensive flushing or even replacement of pipework maybe required.

¹ PFAS = per- and polyfluoroalkyl substances

² AFFF = aqueous film-forming foam

³ SFFF = synthetic fluorine free foam

A changing market

Due to environmental concerns and new legislation around the world, Viking is working tirelessly to ensure we are able to offer a foam product line capable of high performing solutions but without the use of fluorine.

Whilst fluorine free foams are not new, there is now an increasing demand for non-PFAS¹ containing foams and complimentary fixed foam system hardware capable of performing to the levels of traditional fluorinated (AFFF²) systems. Whilst the term “drop in replacement” should be used with caution, there are newly developed products available that are viable alternatives to AFFF based products.

At Viking, we understand that is not just about the foam concentrate. The associated system components must work in harmony and have independent approval / certification. This demonstrates real performance – thanks to 3rd-party witnessed fire tests – giving peace of mind to end users, authorities having jurisdiction and system integrators.



Systems Philosophy and SFFF Icon



Systems philosophy

Internationally recognised test and design standards require foam concentrates to be approved / listed with specific components - with specific design and usage data. Our approach to holistic foam systems enables us to gain FM Approvals to FM5130 and UL Listings to UL162, which allows the integration of our products into design standards such as NFPA11, NFPA409, NFPA30 and several FM Global data sheets. The European test standard (EN13565-1) and design standard (EN13565-2) falls short in this regard with little or no requirement for a systems approach.

SFFF icon

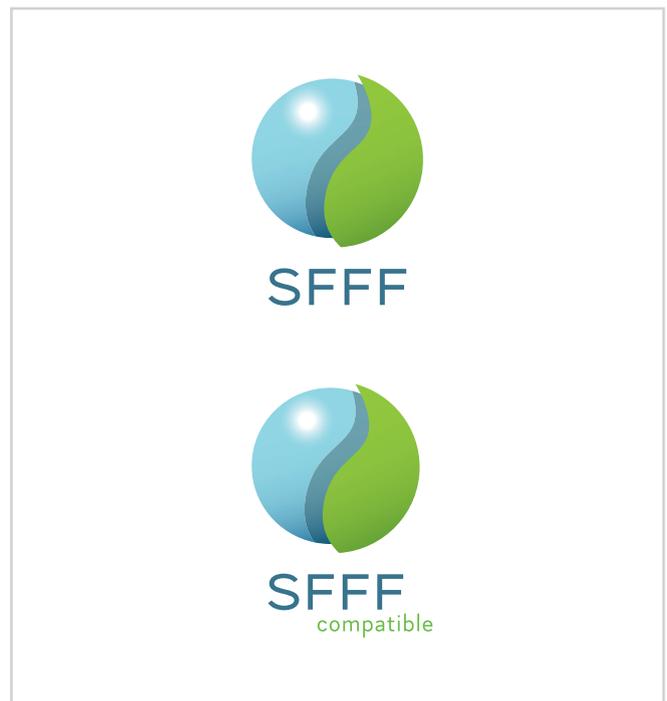
SFFF stands for synthetic fluorine free foam.

Viking's product line contains fluorinated and fluorine free foam concentrates. Our associated system hardware is also available for use with both types of foam.

Our commitment to the highest quality and performance means that not all combinations of foam concentrate and foam hardware are currently possible.

To facilitate simple and quick recognition of a fluorine free foam concentrate and fluorine free foam component, we have created these icons to signify a particular product's ability to be utilised in a fluorine free foam system.

The icons are used across our commercial documentation. The first icon is used with our foam concentrates and the second icon is applied to system components.





SFFF Range - Concentrates

SFFF concentrates

Here is an overview of the core SFFF concentrates and components for use in fixed systems supplied by Viking.

Viking USP is a fluorine-free foam consisting of selected hydrocarbon surfactants, solvents and stabilizers to give optimal fire performance. Viking USP is specially designed to be an effective fluorine free alternative for sprinkler systems, type II and III discharge devices*.

Viking ARK is a multi-purpose alcohol resistant foam concentrate free of fluoro surfactants and polymers. The unique formulation of Viking ARK enables discharged foam to rapidly cover burning surfaces and control or extinguish the fire. It is effective on hydrocarbon fires and, with the presence of special polymers, very effective on polar solvent fires. It is specifically designed for use in non-aspirated sprinkler systems and is effective with other low and medium expansion devices.

Enviro eMax is a new generation of high performance fluorine free alcohol resistant multipurpose foam concentrate. It is free of fluoro surfactants and polymers. It consists of a novel blend hydrocarbon surfactants, blended with various solvents, and stabilizers. Enviro eMax has been designed as a high expansion foam that can also be used in low and medium expansion applications.

Viking XMAX is a new generation of high performing, multi-purpose foam concentrate consisting of hydrocarbon surfactants blended with various solvents, preservatives and stabilizers. It is free of fluoro surfactants and has been designed for use primarily in high expansion systems but can also be used a multi-purpose foam in medium expansion and low expansion applications also.



* Type II Discharge Outlet - A discharge device designed to deliver the extinguishing foam onto a liquid surface with minimal submergence or agitation. Example: Foam Chamber
 Type III Discharge Outlet - A discharge device designed to deliver the extinguishing foam onto a liquid surface with significant submergence or agitation. Example: Monitor

SFFF Type	Application ¹	Risk ²	Approval / Certification ³						
			FM	UL	EN1568	ICAO	GESIP	MED	VdS
Viking USP	L, M	HC	✓	✓	✓	✓	✓	✓	✓
Viking ARK	L, M	HC+PS	✓	✓	✗	✗	✗	✗	✗
Enviro eMax	L, M, H	HC+PS	✗	✗	✓	✗	✗	✗	✗
Viking XMAX	L, M, H	HC	✗	✓	✓	✗	✗	✗	✗

¹ L = Low Expansion, M = Medium Expansion, H = High Expansion

² HC = Hydrocarbon, PS = Polar Solvent based Class B Ignitable Liquids

³ Refer to technical documentation, approval or certification for further details.

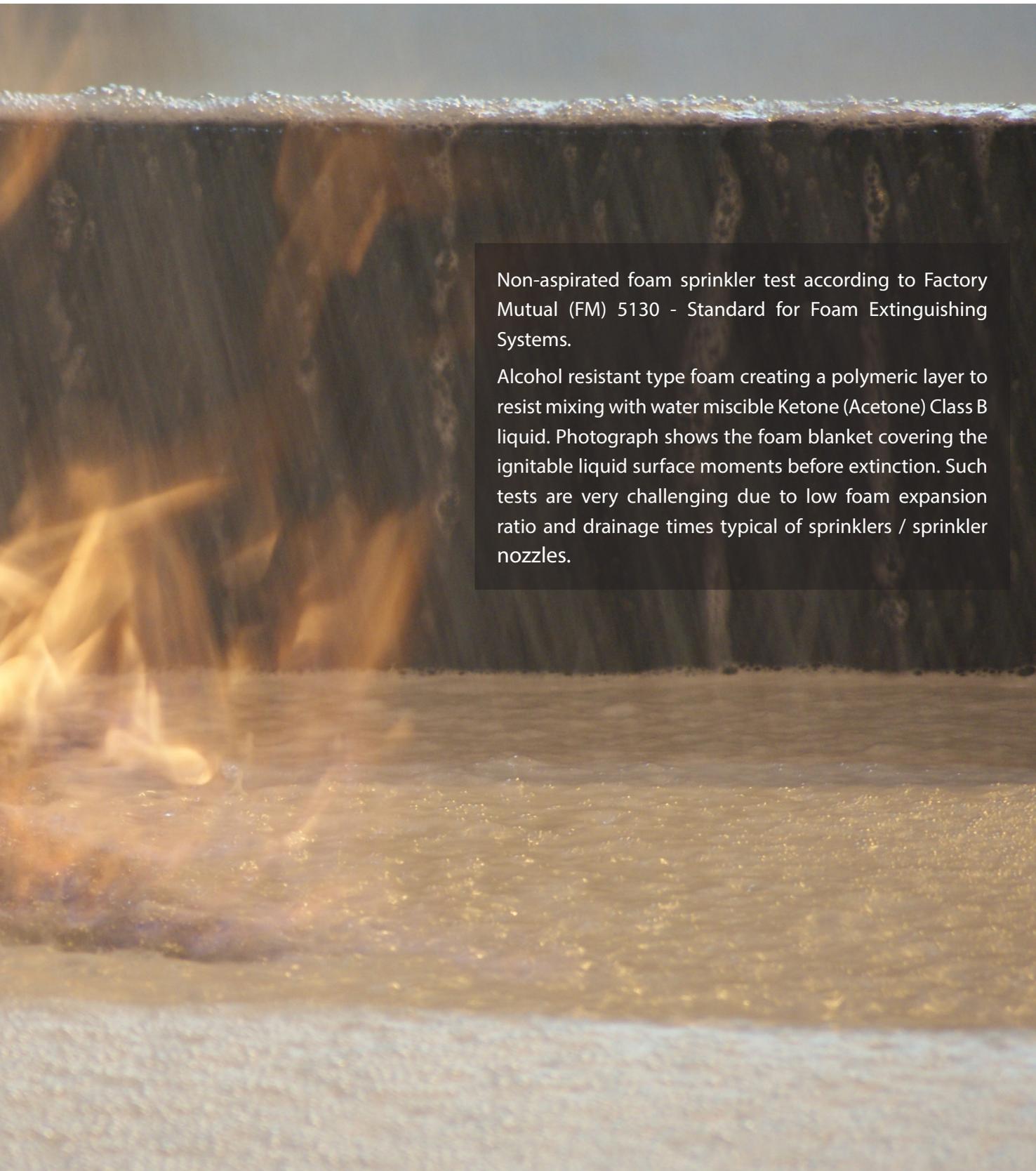
SFFF Range - System Components

System Component ¹	Approval ²	Viking USP	Viking ARK	Enviro eMax	Viking XMAX
Non-aspirated Sprinkler 	FM	✓	✓	n/a	-
	UL	✓	-	-	-
Foam Monitor 	FM	-	-	-	-
	UL	✓	-	-	-
Foam Chamber 	FM	-	-	-	-
	UL	✓	✓	n/a	-
Foam Maker 	FM	✓	✓	-	-
	UL	✓	-	-	-
Grate Nozzle 	FM	✓	-	-	-
	UL	-	-	-	-
High Expansion Generator 	FM	-	-	-	-
	UL	n/a	n/a	-	✓
	VdS	n/a	n/a	✓	✓
	APSAD R12	n/a	n/a	✓	✓
Wide Range Proportioner 	FM	✓	✓	n/a	n/a
	UL	-	-	n/a	n/a
Ratio Controller 	FM	✓	✓	-	-
	UL	✓	-	-	✓
Bladder Tank 	FM	✓	✓	-	-
	UL	✓	-	-	✓

¹ Foam concentrate and foam component approvals not required by some design standards.
² Refer to technical documentation, approval or certification for further details.
n/a Foam type is not recommended for use with the component type.
- Foam type and component are suitable but approval not currently available.
✓ Foam and component have been tested and approved to defined standards by the third party authorities (in Approval).

Note: Not all of the approvals are publicly released at the time of this publication. Contact us to learn more.





Non-aspirated foam sprinkler test according to Factory Mutual (FM) 5130 - Standard for Foam Extinguishing Systems.

Alcohol resistant type foam creating a polymeric layer to resist mixing with water miscible Ketone (Acetone) Class B liquid. Photograph shows the foam blanket covering the ignitable liquid surface moments before extinction. Such tests are very challenging due to low foam expansion ratio and drainage times typical of sprinklers / sprinkler nozzles.

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For further information, please visit

<https://www.viking-emea.com/Fluorine-Free-Foam-Sprinkler-Systems/>

or

<https://www.viking-emea.com>



For further information, please contact your local Viking sales office or refer to the technical documentation.
The contents of this publication are subject to modifications without notice.

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