1. **DESCRIPTION**

The Viking USP concentrate concentrate is specially designed and tested to be an effective fluorine free fire protection system foam alternative. This concentrate is approved for use with fresh water when proportioned at 3%.

**Features:**
- New generation hydrocarbon risk fluorine free foam (SFFF)
- For Class A & B fires
- 100% Biodegradable

2. **LISTINGS AND APPROVALS**

This product must be used in accordance with the certifications listed below. Approved and listed system components can be found at www.approvalguide.com and https://iq.ulprospector.com

**FM Approved**

FM Approved Refer to the FM Approval guide for systems and devices that are approved for use with this concentrate. Refer to the system and device data sheets from Viking, NFPA, FM Global Property Loss Prevention Data Sheets, and relevant local codes and/or standards for correct system design. FM Approval of the foam extinguishing system is contingent upon the design, installation, testing and maintenance performed in accordance with NFPA and/or FM Global Property Loss Prevention Data Sheet 4-12, Foam/ Water Sprinkler Systems.

**UL Listed – GFGV.EX27255**

Underwriters Laboratories, UL 162 7th Edition Refer to the UL Listing for systems and devices that are approved for use with this concentrate. Refer to the system and device data sheets from Viking, NFPA, and relevant local codes and/or standards for correct system design.

"**SFFF compatible**" refers to this product as being part of a SFFF Foam system that has been tested to recognized standards. Not all configurations are available. Please consult technical data and/or the approval/listing for usage requirements.

The following additional approvals are in the name of the manufacturer.
- EN 1568 Part 1 / EN 1568 Part 2 / EN 1568 part 3, Class 1A fresh water*
- ICAO Level B*
- GESIP approved for hydrocarbon fuels*
- IMO 1312*
- MED Module B and D*
- Boeing Specification Support Standard BSS 7432*

3. **TECHNICAL DATA**

**Physical Data**

- **Appearance:** Clear to yellowish liquid
- **Specific gravity at 68 °F (20 °C):** 1.04 +/- 0.01 g/ml
- **Viscosity:** Pseudoplastic*
- **pH:** 6.5 to 8.5
- **Freezing point:** 12 °F (-11 °C)
- **UL Listed storage temperature:** 35 °F (1.6 °C)
- **FM Approved storage temperature:** 35 °F to 120 °F (1.7 to 49 °C)
- **Suspended sediment (v/v):** Less than 0.2%

*see detailed viscosity data in section 16

Form No. F_031622 Rev 02 December 2022 | TD1.3.3.20/27102022/en

Replaces Form No. F_031622 Rev 01
(Updated approved storage temperatures.)
4. ENVIRONMENTAL IMPACT
The Viking USP concentrate is formulated using specially selected raw materials for their fire performance and their environmental profile. The product contains no intentionally added fluorinated surfactants, polymers, and other organohalogens. The Viking USP concentrate is biodegradable and contains NO PFOS NOR PFOA. The handling of foam concentrate or foam solution spills should be in accordance with local regulations. Sewage systems should have no processing issues with foam solution based on the Viking USP concentrate but local sewage operators should be consulted in this respect. The Viking USP concentrate is formulated without the use of fluorinated surfactants. Full details can be found in the Safety Data Sheet (SDS).

5. APPLICATION
The Viking USP concentrate is intended for use on class B hydrocarbon fuel fires such as oil, diesel, aviation fuel and gasoline. It is also suitable for class A fires such as wood, paper, textiles etc. The Viking USP concentrate is especially suited whenever a fluorine-free alternative with high fire performance is required. The Viking USP concentrate is tested for use in sprinkler systems. Refer to listing or approval for further details of approved use combinations.
Note: Not for use as a premixed solution.

6. PROPORTIONING
The Viking USP concentrate can be proportioned at the correct dilution using conventional equipment like bladder tanks and proportioners. Refer to the FM Approval or UL Listing for proportioning equipment approved for use with this concentrate.

7. FIRE PERFORMANCE & FOAMING
The fire performance of this product has been measured and documented according to “International Approvals” stated in this document. The foaming properties are depending on equipment used and other variables such as water and ambient temperatures.

8. SPRINKLER APPLICATION
Sprinkler applications are especially challenging for any foam due to the low operating pressure and the very low expansion reached. Applying foam through a sprinkler is a forceful application method and requires foam that can handle direct application and partial submersion into the fuel without losing its fire performance and burnback resistance. Foams that shall be regarded as suitable for sprinkler applications shall also be able to withstand limited time of water deluge directly onto the foam blanket and still maintain the burnback properties. The Viking USP concentrate has passed above described tests showing very good extinguishing and burnback properties. Refer to the FM Approval Guide or UL Product iQ for acceptable system configurations used with this concentrate and specific sprinkler SINs and their associated minimum application densities.
9. STORAGE / SHELF LIFE

**WARNING:**
Fluctuating environmental conditions such as temperature and sunlight can severely degrade foam concentrate.

- Do not expose to direct sunlight
- Store in climate controlled areas not subject to environmental fluctuations.
- Evaluate all storage containers for suitability based on expected environmental conditions.

Stored in original unbroken packaging, the product will have a long shelf life. Shelf life in excess of 10 years will be found in temperate climates. As with all foams, shelf life will be dependent on storage temperatures and conditions.

**NOTICE**
Storage containers, whether for shipping or permanent storage, shall be evaluated for suitability based on location and temperature fluctuations. The temperature should be as stable as possible. Exposure to direct sunlight shall be avoided.

10. SCOPE OF DELIVERY
We supply this product in 25 liter and 6.5 US gallon cans, 200 liter and 55 US gallon drums, 1000 liter and 265 US gallon IBC containers and in bulk on special request.

11. INSPECTIONS, TESTS AND MAINTENANCE
The foam concentrate should be tested annually. Refer to respective requirements, according to the relevant codes and/or standards for Inspection, Testing and Maintenance. If applicable, refer to FM Global Property Loss Prevention Datasheet 4-12 for specific test and commissioning criteria. In addition, the “Authority Having Jurisdiction” (AHJ) may have additional maintenance, testing and inspection requirements that must be followed.

12. DISPOSAL
At the end of use the product packaging should be disposed of via the national recycling system. Some IBC Tote containers maybe part of a national collection scheme. Details will be attached to the IBC Tote if this service is available. Foam Concentrate should be disposed of according to local regulations.

13. AVAILABILITY
The product is available directly from Viking and official distributors only.

**Americas:**
The Viking Corporation  
5150 Beltway SE  
Caledonia, MI 49316  
Tel.: (800) 968-9501  
Fax: 269-818-1680  
Technical Services: 1–877–384–5464  
technsvcs@vikingcorp.com

**EMEA:**
Viking S.A.  
21, Z.I., Haneboesch  
L–4562 Differdange / Niederkom  
Tel.: +352 58 37 37 – 1  
Fax: +352 58 37 36  
vikinglux@viking–emea.com

**Asia Pacific (APAC) Main Office:**
The Viking Corporation (Far East) Pte. Ltd.  
69 Tuas View Square  
Westlink Techpark, Singapore 637621  
Tel: (+65) 6 278 4061  
Fax: (+65) 6 278 4609  
vikingAPAC@vikingcorp.com

14. GUARANTEE
For details of warranty, refer to Viking’s current list price schedule or contact Viking directly.

15. COMPATIBILITY
Contact Viking with questions regarding the compatibility of this product.
16. VISCOSITY

The viscosity flow curves are determined by Brookfield RST rheometer from low to high shear rates. The viscosity curves below are determined by calculating the average value of at least 8 different measurements and add a safety margin of three standard deviations to the average. The viscosity curves are determined for 68 °F and 41 °F (20 °C and 5 °C). In the table below the kinematic viscosity (mm²/s) is calculated as dynamic viscosity (mPa∙s) divided by the specific gravity of the concentrate.

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<th>RPM</th>
<th>Shear Rate (s⁻¹)</th>
<th>Dynamic Viscosity (mPa/s) 68 °F (20 °C)</th>
<th>41 °F (5 °C)</th>
<th>Kinetic Viscosity (mm²/s) 68 °F (20 °C)</th>
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Viscosity vs Shear Rate