



TECHNICAL DATA

VIKING ARK SFFF FLUORINE FREE FOAM CONCENTRATE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

1. DESCRIPTION

Viking ARK 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 alcohol resistant fluorine free foam (SFFF)
- For Class A & B fires

2. LISTINGS AND APPROVALS

This product must be used in accordance with the certifications listed below.

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 11, FM Global Property Loss Prevention Data Sheets, and relevant local 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 11 and/or FM Global Property Loss Prevention Data Sheet 4-12, Foam/Water Sprinkler Systems.

“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.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

3. TECHNICAL DATA

Physical Data

| | |
|---|--------------------------------|
| Appearance..... | Clear to yellowish liquid |
| Specific gravity at 68 °F (20 °C) | 1,013 +/- 0.01 g/ml |
| Viscosity | Pseudoplastic* |
| pH..... | 6,5 to 8,5 |
| Freezing point | 25 °F (-4 °C) |
| Recommended storage temperature | 32 °F to 131 °F (0 to 55°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



4. ENVIRONMENTAL IMPACT

Viking ARK 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. Viking ARK 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 Viking ARK concentrate but local sewage operators should be consulted in this respect. Viking ARK is formulated without the use of fluorinated surfactants. Full details can be found in the Safety Data Sheet (SDS).

5. APPLICATION

Viking ARK is intended for use on class B hydrocarbon fuel fires such as oil, Diesel and Gasoline as well as polar solvents such as IPA, Acetone, Ethanol, and Methanol. It is also suitable for class A fires such as wood, paper, textiles etc. Viking ARK is especially suited whenever a fluorine-free alternative with high fire performance is required. Viking ARK 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.



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TABLE 1: ORDERING INFORMATION

| Volume | Packaging | Part Number | Approximate Shipping Weight** | | Dimensions* In (mm) | | Sales Region |
|----------------|---|----------------|-------------------------------|-------|------------------------|----------------|--------------|
| | | | Lbs. | Kg | Inches | mm | |
| 25 Litres | Can | V-SFFFARK/25 | 55** | 25** | 11x10x17 | 295x260x441 | EMEA/APAC |
| 200 Litres | Drum | V-SFFFARK/200 | 461** | 209** | 23x23x37 | 581x581x935 | EMEA/APAC |
| 1000 Litres | IBC Tote | V-SFFFARK/1000 | 2340 | 1060 | 47x39x45 | 1200x1000x1150 | EMEA/APAC |
| 6.5 US Gallons | Can | F24175-6.5 | 62** | 28** | 11x10x29 | 295x260x737 | AMERICAS |
| 55 US Gallons | Drum | F24175-55 | 488** | 221** | 23x23x37 | 581x581x935 | AMERICAS |
| 265 US Gallons | IBC Tote | F24175-265 | 2393 | 1084 | 47x39x45 | 1200x1000x1150 | AMERICAS |
| Bulk | Bulk tanker deliveries available by special request. Contact Viking for availability. | | | | | | |

*Shipping Weight and Dimensions are approximate. **Weight does not include pallet.

6. PROPORTIONING

Viking ARK can be proportioned at the correct dilution using conventional equipment like bladder tanks and proportioners. Refer to the FM Approval 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. Viking ARK has passed above described tests showing very good extinguishing and burnback properties. Refer to the FM Approval Guide for acceptable system configurations used with this concentrate and specific sprinkler SINS and their associated minimum application densities.

9. STORAGE / SHELF LIFE

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.

10. SCOPE OF DELIVERY

We supply this product in 25 litre and 6.5 US gallon cans, 200 litre and 55 US gallon drums, 1000 litre 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 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.



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12. DISPOSAL



At the end of use the product packaging should be disposed of via the national recycling system. Some IBC Tote containers may be 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
techsvcs@vikingcorp.com

EU:

Viking S.A.
21, Z.I. Haneboesch
L-4562 Differdange / Nieder Korn
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.

| Shear Rate (s ⁻¹) | Dynamic Viscosity (mPa/s) | | Kinetic Viscosity (mm ² /s) | |
|-------------------------------|---------------------------|--------------|--|--------------|
| | 68 °F (20 °C) | 41 °F (5 °C) | 68 °F (20 °C) | 41 °F (5 °C) |
| 10,7 | 3083 | 3258 | 3043 | 3217 |
| 21,5 | 1726 | 1851 | 1703 | 1827 |
| 53,7 | 791 | 870 | 781 | 859 |
| 107,4 | 444 | 505 | 438 | 499 |
| 214,8 | 261 | 304 | 258 | 300 |
| 375,0 | 174 | 206 | 171 | 204 |
| 537,0 | 136 | 164 | 134 | 162 |
| 1074,0 | 106 | 121 | 104 | 119 |
| 1611,0 | 68 | 88 | 67 | 87 |
| 2148,0 | 58 | 75 | 57 | 74 |
| 2792,2 | 79 | 87 | 78 | 86 |

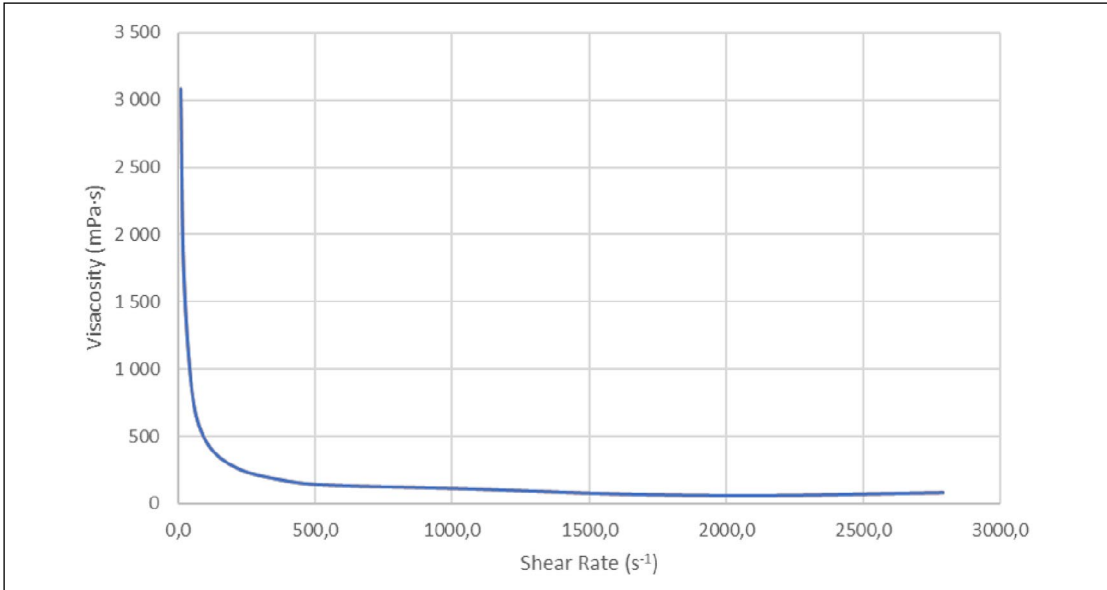


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Viscosity vs Shear Rate - Viking ARK SFFF @ 68 °F (20 °C)



Viscosity vs Shear Rate - Viking ARK SFFF @ 41 °F (5 °C)

