THUNDERSTORM W813A 1%x3% AR-AFFF Concentrate

Description

THUNDERSTORM W813A 1×3 AR-AFFF (Alcohol Resistant Aqueous Film-Forming Foam) Concentrate from Williams Fire & Hazard Control delivers exceptional firefighting performance, continuing the renowned heritage of THUNDERSTORM products. THUNDERSTORM W813A Concentrate combines fluoro- and hydrocarbon-surfactant technologies to provide superior fire and vapor suppression for Class B, polar solvent and hydrocarbon fuel fires. This synthetic foam concentrate is intended for forceful or gentle firefighting applications at 1% solution on hydrocarbon fuels and gentle firefighting applications at 3% solution on polar solvent fuels in fresh, salt, or hard water.

THUNDERSTORM W813A foam solution utilizes three suppression mechanisms intended for rapid fire knockdown and superior burnback resistance:

- The foam blanket blocks oxygen supply to the fuel.
- Liquid drains from the foam blanket and forms either:
  - An aqueous film on a hydrocarbon fire, or
  - A polymeric membrane on a polar solvent fire which suppresses the vapor and seals the fuel surface.
- The water content of the foam solution produces a cooling effect for additional fire suppression.

TYPICAL PHYSIOCHEMICAL PROPERTIES AT 77 °F (25 °C)

Appearance	Viscous Purple Liquid
Density	1.05 ± 0.02 g/ml
pH	7.0 - 8.5
Refractive Index	1.3640 minimum
Viscosity*	3,000 ± 500 cps at 30 rpm
Viscosity*	1,800 ± 300 cps at 60 rpm
Spreading Coefficient	3.0 dynes/cm minimum at 1% dilution
Pour Point	23 °F (-5 °C)
Freeze Point	21 °F (-6 °C)

*Brookfield Viscometer Spindle #4

THUNDERSTORM W813A Concentrate is a non-Newtonian fluid that is both pseudoplastic and thixotropic; therefore, dynamic viscosity will decrease as shear increases.

The environmentally-mindful THUNDERSTORM W813A 1x3 AR-AFFF Concentrate formulation contains short-chain, C-6 fluorochemicals manufactured using a telomer-based process. The telomer process produces no PFOS, and these C-6 materials do not breakdown to yield PFOA. The fluorochemicals used in the concentrate meet the goals of the U.S. Environmental Protection Agency 2010/15 PFOA Stewardship Program and the current ECHA Directive (EU) 2017/1000.

ENVIRO-MINDED FORMULA C6

010009

Approvals, Listings, and Standards

THUNDERSTORM W813A 1×3 AR-AFFF Concentrate is designed in accordance with National Fire Protection Association (NFPA) Standard 11 for Low-, Medium-, and High-Expansion Foam. The concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- UL Standard 162, Foam Liquid Concentrates
- ULC S564, Category 2 Foam Liquid Concentrates
- EN 1568:2008 – Parts 3, 4

The THUNDERSTORM W813A formulation has been successfully evaluated in accordance with the Williams Fire & Hazard Control Plunging Test protocol.

UL LISTED ULC LISTED EN 1568

Application

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate is intended for use on both types of Class B fires: hydrocarbon fuels with low water solubility, such as crude oils, gasolines, diesel fuels, and aviation fuels; and polar solvent fuels with appreciable water solubility, such as methyl and ethyl alcohol, acetone, and methyl ethyl ketone. The concentrate also has excellent wetting properties that can effectively combat Class A fires.

To provide even greater fire protection capability, THUNDERSTORM W813A foam solution may be applied simultaneously with WILLIAMS FIRE & HAZARD CONTROL PKW dry chemical for a twin-agent system. When using twin-agent application on polar solvent fuels, care must be taken with the velocity of the dry chemical discharge to minimize submergence of the polymeric membrane below the fuel surface.

THUNDERSTORM W813A Concentrate can be ideal for emergency response and semi-fixed firefighting applications such as:

- Flammable liquid in depth and spill fires
- Fuel or chemical storage tanks
- Industrial chemical and petroleum processing facilities
- Truck/rail loading and unloading facilities
- Mobile equipment

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Foaming Properties

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate may be effectively applied using most conventional foam discharge equipment at the correct dilution with fresh, salt, or hard water. For optimum performance, water hardness should not exceed 500 ppm expressed as calcium and magnesium.

THUNDERSTORM W813A Concentrate requires low energy to foam and the foam solution may be applied with aspirating and non-aspirating discharge devices. Non-aspirating devices, such as handline water fog/stream nozzles or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1. Aspirating low-expansion discharge devices typically produce expansion ratios from 3.5:1 to 10:1, depending on the type of device and the flow rate. Medium-expansion discharge devices typically produce expansion ratios from 20:1 to 60:1.

TYPICAL FOAM CHARACTERISTICS (Fresh and Salt Water)**

	Hydrocarbon	Polar Solvent
Proportioning Rate	1%	3%
Expansion Ratio	≥ 7.0	≥ 7.0
25% Drain Time (min:sec)	≥ 4:00	≥ 17:00
50% Drain Time (min:sec)	≥ 7:00	≥ 21:00

**per EN 1568-3, 2008 protocol using UNI86 aspirating nozzle

Proportioning

The recommended operational temperature range for THUNDERSTORM W813A 1x3 AR-AFFF Concentrate is 35 °F to 120 °F (2 °C to 49 °C) per UL-162. This foam concentrate can be correctly proportioned using most conventional, properly calibrated, in-line proportioning equipment such as:

- Balanced and in-line balanced pressure pump proportioners
- Balanced pressure bladder tanks and ratio flow controllers
- Around-the-pump type proportioners
- Fixed or portable in-line venturi type proportioners
- Handline nozzles with fixed eductor/pick-up tubes

Materials of Construction Compatibility

To help avoid corrosion, galvanized pipe and fittings should never be used in contact with undiluted THUNDERSTORM W813A 1x3 AR-AFFF Concentrate. Refer to Johnson Controls Technical Bulletin "Acceptable Materials of Construction" for recommendations and guidance regarding compatibility of foam concentrate with common materials of construction in the firefighting foam industry.

Storage and Handling

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate should be stored in the original supplied package (HDPE totes, drums, or pails) or in the recommended foam system equipment as outlined in Johnson Controls Technical Bulletin "Storage of Foam Concentrates". A thin layer up to 1/4 in. (6 mm) of appropriate grade mineral oil may be applied to the surface of the foam concentrate stored in a fixed, atmospheric storage container to minimize evaporation. Consult Johnson Controls for further guidance regarding the use of mineral oil to help seal the surface of AR-AFFF concentrates.

The concentrate should be maintained within the recommended operational temperature range. Freezing of the product should be avoided. If, however, the product freezes during transport or storage, it must be thawed and inspected for signs of separation. If separation has occurred, or is suspected, the THUNDERSTORM W813A Concentrate should be mechanically mixed until homogeneous, and additional testing may be required after mixing to verify product quality.

Factors affecting the foam concentrate's long-term effectiveness include temperature exposure and cycling, storage container characteristics, air exposure, evaporation, dilution, and contamination. The effective life of THUNDERSTORM W813A Concentrate can be maximized through optimal storage conditions and proper handling. THUNDERSTORM foam concentrates have demonstrated effective firefighting performance with contents stored in the original package under proper conditions for more than 10 years.

Mixing THUNDERSTORM W813A Concentrate with other foam concentrates for long-term storage is not recommended. Use in conjunction with comparable 1x3 AR-AFFF products for immediate incident response is appropriate.

Inspection

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate should be inspected periodically in accordance with NFPA 11, EN 13568-2, or other relevant standard. A representative concentrate sample should be sent to Johnson Controls Foam Analytical Services or other qualified laboratory for quality analysis per the applicable standard. An annual inspection and sample analysis is typically sufficient unless the product has been exposed to unusual conditions.

Quality Assurance

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate is subject to stringent quality controls throughout production, from incoming raw materials inspection to finished product testing, and is manufactured in an ISO 9001:2008 certified facility.

Ordering Information

THUNDERSTORM W813A 1x3 AR-AFFF Concentrate is available in pails, drums, totes, or bulk shipment.

Part No.	Description	Approximate Shipping Weight
Pails		
704071	5 gal (19 L)	45 lb (20.4 kg)
704071E	5 gal (19 L)	45 lb (20.4 kg)
Drums		
704073	55 gal (208 L)	495 lb (224.5 kg)
704073E	55 gal (208 L)	495 lb (224.5 kg)
Totes*		
704075	265 gal (1,003 L)	2,463 lb (1,117 kg)
704075A	265 gal (1,003 L)	2,463 lb (1,117 kg)
704075E	1,000 L	1,110 kg
704077	320 gal (1,211 L)	2,963 lb (1,344 kg)

For bulk orders, consult an account representative.

*Totes are not UL/ULC approved packaging.

Safety Data Sheets (SDS) are available at www.williamsfire.com

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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