



A Tyco International Company

ANSULITE 1x1 AR-AFFF CONCENTRATE

Data/Specifications

FEATURES

- 1% proportioning for both hydrocarbon and polar solvent fuels
- UL-162 listed, EN 1568 approved, EPA 2015 compliant, and LASTFIRE tested
- Use with aspirating and non-aspirating discharge devices
- Low “water-like” viscosity
- Suitable for use with fresh, salt, or hard water
- Freeze protected down to 0 °F (–18 °C)

APPLICATION

ANSULITE 1x1 Alcohol-Resistant Aqueous Film-Forming Foam (AR-AFFF) Concentrate is formulated for use in a 1% foam solution on all Class B fuels, hydrocarbon or polar solvent, wherever life safety and asset protection is essential. When diluted with fresh, salt, or hard water; ANSULITE 1x1 AR-AFFF can be discharged through aspirating or non-aspirating branch pipes and nozzles, fixed foam making devices, and sprinklers to suppress Class A and B fuel fires. Typical applications include oil and gas facilities, chemical plants, refineries and tank farms, alternative fuel facilities, warehouses, municipal fire service, and many others.

DESCRIPTION

ANSULITE 1x1 AR-AFFF Concentrate is manufactured using C-6 fluoro-chemistry in compliance with the U.S. Environmental Protection Agency 2015 Stewardship Program. This proprietary formulation is the first AR-AFFF that does not rely on biopolymer precipitation to suppress polar solvent fires. Therefore, the concentrate does not possess a thixotropic property, but rather has the appearance and viscosity of an AFFF.

Unlike conventional AR-AFFF products, the physical properties of ANSULITE 1x1 concentrate are similar to traditional AFFF products. Benefits to the end user include a reduction in the required storage space for the foam concentrate because of its ability to work as a 1% solution on both hydrocarbon and polar solvent fuels. ANSULITE 1X1 AR-AFFF is approved for use in salt, fresh, or hard water. Proportioning properties are very similar to AFFF and its water-like viscosity enhances performance in all types of foam proportioning equipment.

There are three fire extinguishing mechanisms in effect when using ANSULITE 1x1 foam solution on either a conventional Class B hydrocarbon fuel such as gasoline, diesel fuel, etc.; or a Class B polar solvent (water miscible fuel) such as methyl alcohol, acetone, etc.

1. An aqueous film is formed in the case of a conventional hydrocarbon fuel, or a polymeric membrane in the case of a polar solvent fuel. This film or membrane forms a barrier to help prevent the release of fuel vapor.
2. Regardless of the fuel type, a foam blanket is formed which excludes oxygen. The liquids that form the film or the polymeric membrane are drained from the foam blanket.
3. The water content of the foam produces a cooling effect.



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Typical Physiochemical Properties at 77 °F (25 °C)

Appearance	Amber Liquid
Density	1.09 ± 0.01 g/ml
pH	7.0 – 8.0
Refractive Index	1.3980 ± 0.0015
Viscosity	50 cSt
Spreading Coefficient	4.0 – 6.0

PERFORMANCE

Fire Performance

The fire performance of ANSULITE 1x1 AR-AFFF is measured against Underwriters Laboratories Standard 162 (Latest Revision) fire tests. The UL testing focuses on fuels such as heptane and isopropyl alcohol.

Foaming Properties

When used with fresh, salt or hard water at the correct dilution with most conventional foam making equipment, the expansion will vary depending on the performance characteristics of the equipment. Aspirating discharge devices produce expansion ratios from 5:1 to 10:1 depending primarily on the type of aspirating device and the flow rate. Non-aspirating devices, such as hand-line water fog/stream nozzles or standard sprinkler heads, give expansion ratios of 2:1 to 4:1. Medium-expansion discharge devices produce typical expansion ratios between 20:1 and 60:1 depending primarily on the type of device and operating conditions.

Proportioning

ANSULITE 1x1 AR-AFFF can be easily proportioned (at the correct dilution) using most conventional proportioning equipment such as:

- Balanced pressure and in-line balanced pressure pump proportioning equipment
- Balanced pressure bladder tank proportioners
- Around-the-pump and through-the-pump proportioners
- Fixed or portable (in-line) Venturi-type proportioners
- Hand-line nozzles with fixed induction/pickup tubes

The minimum and maximum usable temperature for ANSULITE 1x1 AR-AFFF in this equipment is 0 °F (–18 °C) to 120 °F (49 °C).

PERFORMANCE (Continued)

Storage/Shelf Life

When stored in the packaging supplied (polyethylene totes, drums, or pails) or in equipment recommended by the manufacturer and within the temperature limits specified, the shelf life of ANSULITE 1x1 AR-AFFF is about 20-25 years. The factors affecting shelf life and stability for AFFF agents are discussed in detail in ANSUL Technical Bulletin No. 54 (Form No. F-83114). Freezing of the product should be avoided. If the product is frozen during transport or storage, it must be thawed and inspected for signs of separation. If separation has occurred, the product must be mechanically mixed until homogeneous.

When the concentrate is to be stored in an atmospheric storage tank, a 1/8 to 1/4 in. (3–6 mm) layer of mineral oil should be added to seal the concentrate and minimize the effects of evaporation.

Compatibility

Since it is a unique blend of surfactants, high molecular weight polymers, and solvents; it is recommended that ANSULITE 1x1 AR-AFFF not be mixed with any other foam concentrates. Consult Technical Services with any questions of compatibility.

Materials of Construction Compatibility

Tests have been performed with ANSULITE 1x1 AR-AFFF verifying its compatibility with standard carbon steel “black” pipe and pipe manufactured from various stainless steel or brass compounds. Alternative pipe, plastic fittings, and valves may be used in some cases if acceptable to the customer and/or the authority having jurisdiction. Refer to ANSUL Technical Bulletin No. 59 (Form No. F-90109) addressing acceptable materials of construction for use with ANSUL foam concentrates.

To help prevent corrosion, galvanized pipe and fittings must not be used in areas where they will contact the undiluted concentrate.

Please consult Technical Services for specific guidelines concerning materials of construction.

Inspection

As with any fire extinguishing agent, ANSULITE 1x1 AR-AFFF, whether in the concentrate or pre-mixed form, should be inspected periodically. NFPA 11 “Standard for Low Expansion Foam and Combined Agent Systems” requires that foam concentrate samples be submitted to the manufacturer or other qualified laboratory for quality condition testing at least annually. Please refer to the Field Inspection Manual (Part No. 31274) for the detailed procedures necessary to perform this inspection. An annual inspection is recommended unless unusual conditions of exposure occur, as described in ANSUL Technical Bulletin No. 54. In such cases, contact Technical Services.

APPROVALS AND LISTINGS

Underwriters Laboratories successfully tested ANSULITE 1x1 AR-AFFF to the requirements contained in UL 162 “Standard for Air-Foam Equipment and Liquid Concentrates.” To receive a UL listing, the following tests must be performed successfully:

- Foam Quality Tests
- Class B Hydrocarbon Fuel Fire Tests
- Class B Polar Solvent Fuel Fire Tests
- Foam Identification Tests
- Tests of Shipping Containers

In addition to determining agent characteristics, Underwriters Laboratories lists ANSULITE 1x1 AR-AFFF for use with specific hardware components that also carry the UL listing.

ANSULITE 1x1 AR-AFFF is approved to EN 1568 Parts 3 and 4. It has also been successfully tested to LASTFIRE test protocol by Resource Protection International.

ORDERING INFORMATION

ANSULITE 1x1 AR-AFFF is available in pails, drums, totes or bulk shipment.

Part No.	Description	Shipping Weight	Cube
437681	5 gal (19 L) Pail	46 lb (20.9 kg)	1.25 ft ³ (0.0353 m ³)
437682	55 gal (208 L) Drum	495 lb (224.5 kg)	11.83 ft ³ (0.3350 m ³)
437683	265 gal (1000 L) Tote	2463 lb (1117 kg)	50.05 ft ³ (1.42 m ³)
437680	Bulk Order	Contact ANSUL Technical Services	