

## For More Information:

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### AUTHORIZED ANSUL DISTRIBUTOR

Make your buying decisions easier. The Ansul Foam Systems 'InterActive Video Presentations and Design Manual' CD is your basic reference tool when deciding on foam fire protection. Ask us about it.



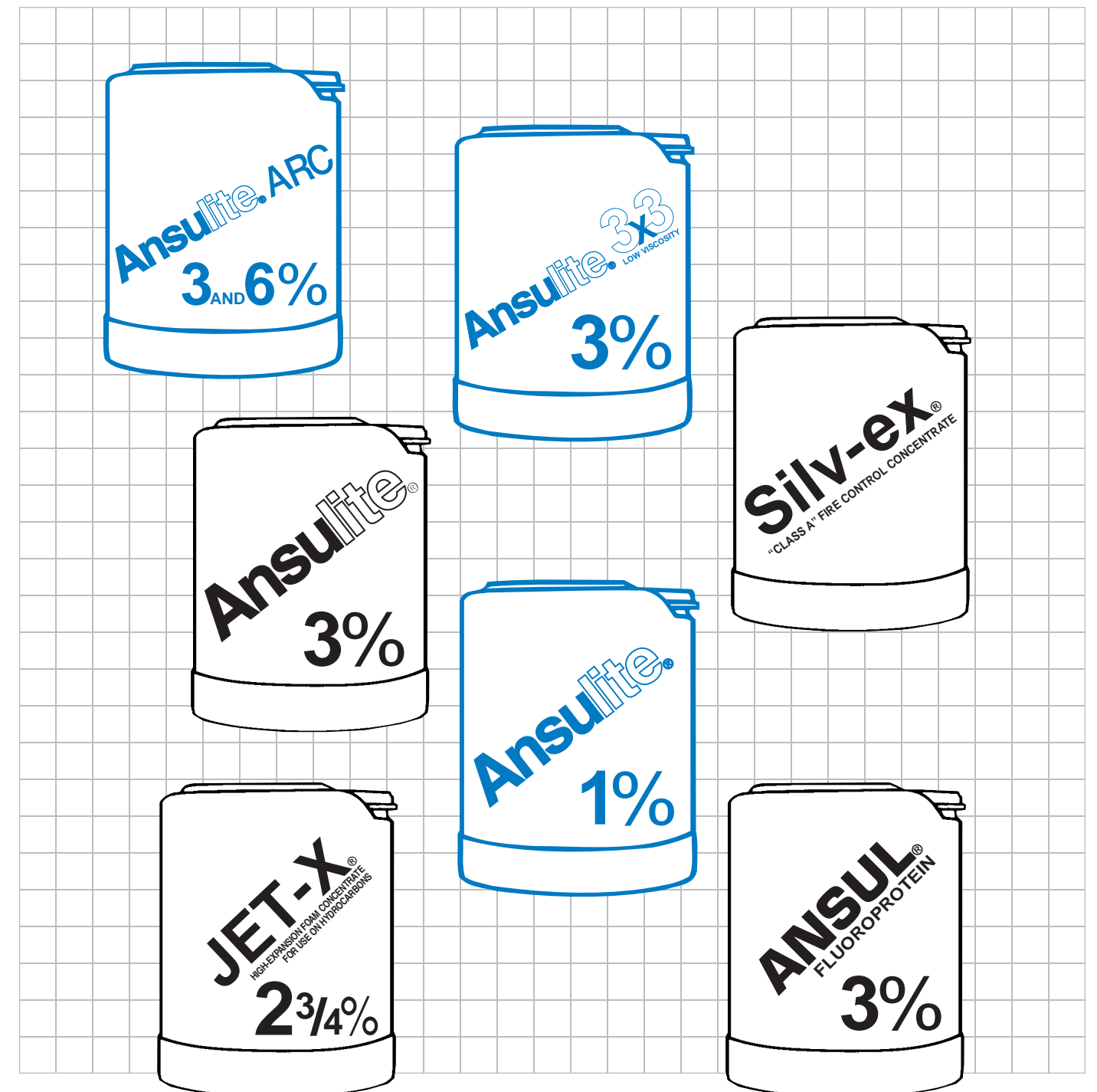
**tyco**

Tyco Suppression  
Systems

**ANSUL**

## AGENTS

**ANSUL** **FOAM**



## Ansul... Counted On Since 1939

It's simple. Ansul protects life and property. We're not just suppliers. We're not just manufacturers. Like you, we're people. And like you, we care about protecting your people and facilities from fire. That's our philosophy, and has been since 1939.

## Flammable Liquid Fires . . . We Know Them Well

If you've never been witness to the awesome force and speed of fire spreading across the surface of a flammable or combustible fuel, just ask someone from Ansul. Most of us have seen one, first hand, at the Ansul Fire Technology Center. It's not uncommon to see the smoke and flame, feel the heat, or hear the roar of a gasoline or propane test fire. Ansul people understand the danger and destructive nature of these violent fires.

And that's why we strive to provide the best products available. You can rest assured – when you choose Ansul foam products, you've chosen equipment designed and built by seasoned experts.

## Everything You'll Need From One Source

Some companies provide only foam agents; others provide only hardware. Ansul manufactures a full line of foam products: foam agents, storage tanks, proportioning equipment, and discharge devices.

All Ansul products are designed, tested, and listed to perform together. Ansul has the technical experts that make them perform for you . . . and with worldwide distribution, there's always someone nearby to make sure they keep performing.

## Quality Checked From Day One

From the drawing board to the shipping department, all Ansul foam products are tested against strict quality standards. In the development stage, every component is scrutinized by a team of design, application, and quality assurance engineers and tested in our fully-equipped, state-of-the-art hydraulics laboratory. In the manufacturing stage, our foam hardware is built within tight tolerances and inspected against exacting standards. So when your Ansul equipment arrives, you can feel confident that quality and reliability are built into every component.

## Are agent listings and approvals important?

As is the case with all fire protection products, the approval process is extremely important. Recognized independent testing agencies – such as Underwriters Laboratories (UL) and Factory Mutual (FM) – as well as the U.S. Government and other international agencies – establish standards for product performance. These standards are designed to protect the consumer. This is why manufacturers must not only meet the standards initially to secure a product listing, they also must subject their products to subsequent testing in order to retain the listing.

Ansul foam concentrates are manufactured to strict formula, process and performance standards which assure continued compliance with regulatory specifications.

## What is the difference between 6%, 3% and 1% concentrates?

The foam concentrate percentage refers to the amount of concentrate that is proportioned or pre-mixed with water to give the resulting foam solutions.

For example, to make 1,000 gallons of pre-mixed foam solution, a 1,000 gallon tank would require:

- 10 gallons of 1% concentrate, or
- 30 gallons of 3% concentrate, or
- 60 gallons of 6% concentrate

Obviously, the more concentrated the foam agent, the greater the savings in space, weight and cost.

## What other factors should be considered when evaluating a foam agent?

**Environmental impact and toxicity.** Ansul foam concentrates are specifically formulated to maximize performance and minimize environmental impact and human exposure hazards. All concentrates are readily biodegradable – both in the natural environment and in sewage treatment facilities. However, all foam agents should be metered into the facility to prevent overloading the plant due to foam formation. They are not considered skin irritants; however, prolonged contact may cause some dryness of the skin. For this reason, we recommend that areas of the skin which have come in contact with the foam concentrate be flushed with fresh water.

**Shelf life.** Shelf life is the length of time over which Ansul foam concentrates remain stable without significant changes in performance characteristics. ANSULITE® AFFF, JET-X® high expansion, and SILV-EX® Class A foam concentrates – if stored in accordance with recommended guidelines – have a normal shelf life of 20-25 years. All other Ansul foam agents – those which are not totally synthetic – have a normal shelf life of 7-10 years.

**Periodic testing.** Ansul recommends periodic testing of foam concentrates to ensure that performance standards will be maintained. NFPA Standard 11 suggests that this process be done on an annual basis and outlines procedures to accomplish the testing. For the convenience of our customers, samples may be sent directly to Ansul for testing and evaluation. Ansul provides a procedure for checking on-site the quality of foam concentrates and pre-mix solutions that it manufactures. The test procedures and methods are covered in Ansul's Field Inspection Procedure Manual (Ansul Part No. 31274).

**Compatibility.** Ansul foam concentrates have been found to be compatible with most other foam concentrates of similar type and quality. However, before mixing foam agents, we suggest contacting Ansul for further information.



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# A Full Line of Foam Agents

Whatever the application . . . AFFF, alcohol resistant concentrate, protein, fluoroprotein or high-expansion foam concentrates . . . Ansul can meet your requirements.

## AFFF (AQUEOUS FILM-FORMING FOAM)

### ANSULITE® 1% CONCENTRATE\*



003802

### ANSULITE® 3% CONCENTRATE\*



003757

### ANSULITE® 6% CONCENTRATE



003758

<b>Approvals/Listings</b>	U.L. Listed	U.L. Listed On qualified products list for MIL-F-24385F – Meets Ministry of Defense (UK) Standards FM Approved	U.L. Listed On qualified products list for MIL-F-24385F – Defense (UK) Standards – CGSB (Canada) specifications – Australian Department of Aviation Standards
<b>Recommended Foam Equipment**</b>	(1, 2, 3A, 3B, 4, 5, 6, 7)	(1, 2, 3A, 3B, 4, 5, 6, 7)	(1, 2, 3A, 3B, 4, 5, 6, 7)
<b>Characteristics</b>	Produces high quality foam – can be applied through a wide variety of foam delivery systems including nonaspirated nozzles – excellent flame knockdown – good burnback resistance.		
<b>Typical Applications</b>	Municipal fire departments, airports, refineries, petrochemical facilities, manufacturing plants or any operation involving transporting, processing or handling flammable liquids.		
<b>Class A Fuels</b>	Acceptable – but not primary use		

## Class B Fuels\*\*\* (Hydrocarbon type such as gasoline)

<b>Spills</b>	Highly recommended – air-aspirated or nonaspirated nozzles†
<b>Tanks (Topside)</b>	Recommended
<b>Tanks (Subsurface)</b>	Recommended
<b>Overhead Sprinkler Spray Systems</b>	Recommended – air-aspirated or nonaspirated nozzles

\* Also available in low temperature versions

\*\* Equipment Key:

- 1 – Handline nozzles
- 2 – Eductors
- 3A – Standard sprinkler heads

- 3B – Foam water sprinkler heads
- 4 – Balanced pressure proportioners
- 5 – Foam Chambers

- 6 – High back-pressure forcing foam makers
- 7 – Monitors
- 8 – Medium and high expansion foam generators

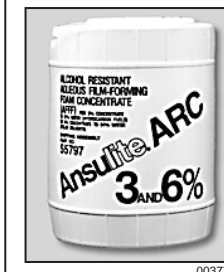
## ALCOHOL-RESISTANT AFFF

### ANSULITE® 3x3 LOW VISCOSITY 3% CONCENTRATE



003759

### ANSULITE® ARC 3% AND 6% CONCENTRATE



003774

## HIGH EXPANSION FOAM

### JET-X® CONCENTRATE



003760

## CLASS A FOAM

### SILV-EX® CONCENTRATE



003761

<b>Approvals/Listings</b>	U.L. Listed USCG Approved FM Approved	U.L. Listed FM Approved	U.L. Listed FM Approved	U.S. Forest Service NFFPA 298
<b>Recommended Foam Equipment**</b>	(1, 2, 3A, 3B, 4, 5, 6, 7)	(1, 2, 3A, 3B, 4, 5, 6, 7)	(2, 4, 8)	(1, 2, 3A, 3B, 4, 7, 8)
<b>Characteristics</b>	Unique to all firefighting foams – a low viscosity foam concentrate that can be applied at 3% on both hydrocarbon and polar solvent fuels.	Versatile firefighting foam. Designed for 3% on hydrocarbons, 6% on polar solvent fuels.	Effective extinguishing ability for all types of spill fires. Designed for use in both high expansion and medium expansion equipment.	Designed specifically for Class A fuels including wood, paper, coal, rubber and plastics.
<b>Typical Applications</b>	Any area or operation involving polar solvent or hydrocarbon fuels.		Warehouses, LNG vapor dispersion, ship cargo areas, mine and bunker fires, tire fires, structure fires.	Forest and grass fires, coal mine and bunker fires, tire fires, structure fires.
<b>Class A Fuels</b>	Acceptable – but not primary use		Recommended	Highly Recommended

Highly recommended – air-aspirated or nonaspirated nozzles†	Limited use – medium expansion nozzles	SILV-EX foam is not recommended on most Class B Fuels. For specific uses through sprinkler systems, consult Ansul.
Recommended	Not recommended	
Recommended	Not recommended	
Highly recommended – especially for mixed Class B fuel groups	Recommended – air-aspirated or non-aspirated nozzles	

\*\*\*Only an alcohol-resistant concentrate is recommended for polar solvent fuels (i.e. alcohols, ketones, ethers, glycol ethers, aldehydes, carboxylic acids)

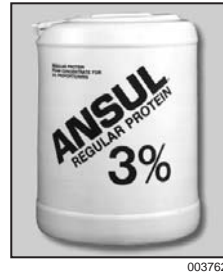
† Certain polar solvents require use of air-aspirated nozzles

ANSUL, ANSULITE, JET-X and SILV-EX are registered trademarks.

# More Foam Agents

Select from a complete line of quality foam agents. Each formulated and tested to provide effective protection for specific types of fire hazards.

## PROTEIN FOAM 3% REGULAR PROTEIN CONCENTRATES



003762

## FLUOROPROTEIN FOAM 3% FLUOROPROTEIN CONCENTRATES



003763

<b>Approvals/Listings</b>	U.L. Listed DIN BWB-Mil	U.L. Listed DIN Mexico
<b>Recommended Foam Equipment**</b>	(1, 2, 3B, 4, 5, 7)	(1, 2, 3B, 4, 5, 6, 7)
<b>Characteristics</b>	Produces highly stabilized air foam – good expansion properties – excellent burnback resistance – can be used with all types of water through most conventional foam hardware	Better control and extinguishing ability and greater fluidity than protein foams – excellent resistance to fuel contamination – good burnback resistance
<b>Typical Applications</b>	Applications involving hydrocarbon bulk storage and handling – such as refineries and petrochemical facilities	Applications involving hydrocarbon bulk storage and handling – such as refineries and petrochemical facilities
<b>Class A Fuels</b>	Acceptable – but not primary use	Acceptable – but not primary use

### Class B Fuels\*\*\* (Hydrocarbon type such as gasoline)

<b>Spills</b>	Recommended – air-aspirated nozzles only	Recommended – air-aspirated nozzles only
<b>Tanks (Topside)</b>	Recommended	Recommended
<b>Tanks (Subsurface)</b>	Not Recommended	Recommended
<b>Overhead Sprinkler Spray Systems</b>	Recommended – with foam water sprinklers only	Recommended – with foam water sprinklers only

\* Also available in low temperature versions

\*\* Equipment Key:

- 1 – Handline nozzles
- 2 – Eductors
- 3A – Standard sprinkler heads
- 3B – Foam water sprinkler heads
- 4 – Balanced pressure proportioners

- 5 – Foam Chambers
- 6 – High back-pressure forcing foam makers
- 7 – Monitors
- 8 – Medium and high expansion foam generators

\*\*\* Only an alcohol-resistant concentrate is recommended for polar solvent fuels (i.e. alcohols, ketones, ethers, glycol ethers, aldehydes, carboxylic acids)

† Certain polar solvents require use of air-aspirated nozzles

# Facts About Foam

## What is firefighting foam?

Chemical formulations aside, firefighting foam is simply a stable mass of small, air-filled bubbles with a lower density than oil, gasoline or water. The foam is made up of three ingredients...water, a foam concentrate and air. The water is mixed with the concentrate to form a foam solution. This solution is then mixed with air to produce the foam which is very fluid and flows readily over liquid surfaces.

## Where are foam agents used?

Firefighting foam is used in a variety of applications to extinguish flammable and combustible liquid fires, to control the release of flammable vapors and to cool fuels and sources of ignition.

Typical foam applications include:

- |                           |                                  |
|---------------------------|----------------------------------|
| Truck loading racks       | Chemical plants                  |
| Refineries                | Offshore platforms               |
| Pipeline pumping stations | Aircraft hangars                 |
| Power plants              | Crash rescue vehicles            |
| Airports                  | Mining facilities                |
| Heliports and helidecks   | Marine docks                     |
| Marine vessels            | Warehouses                       |
| Manufacturing plants      | Hazardous material spill control |
| Large spills              |                                  |
| Storage tanks             |                                  |

## How do foam agents work?

Firefighting foam agents suppress fire by separating the liquid fuel from the air (oxygen). Depending upon the type of foam agent, this is done in several ways:

- the foam blankets the fuel surface, smothering the fire
- the foam blanket separates the flames from the fuel surface
- the foam cools the fuel and adjacent heat and ignition sources
- the foam blanket suppresses the release of flammable vapors that can mix with air.

## What types of foam agents are available?

Essentially there are six general types of foam agents:

**Aqueous Film-Forming Foams (AFFF)** are based on combinations of fluorochemical surfactants, hydrocarbon surfactants and solvents. These agents require a very low energy input to produce a high quality foam. Consequently, they can be applied through a wide variety of foam delivery systems. This versatility makes AFFF agents an obvious choice of municipal fire departments, airports, refineries, manufacturing plants and any other operation involving the transportation, processing and handling of flammable liquids and materials.

**Alcohol-Resistant AFFF Concentrate** is based on AFFF concentrates to which a polymer has been added to make them effective on fires involving polar solvents (methanol) as well as hydrocarbon-type fuels (gasoline). Thus, alcohol-resistant concentrates are the most versatile of the foam agents. The alcohol-resistant concentrate forms a polymeric membrane when used on polar solvent type fuels which prevents destruction of the foam blanket. When used on hydrocarbon fuels, the alcohol-resistant concentrate produces the same rugged aqueous film as a standard AFFF agent. The alcohol-resistant concentrate provides fast flame knockdown and good burnback resistance when used on both types of fuels.

**Protein Foams** are recommended for extinguishment of Class B fires involving hydrocarbons. Typically, these agents are used to protect flammable and combustible liquids where they are stored, transported and processed. Protein foams are based on hydrolyzed protein, stabilizers and preservatives. They produce a highly stabilized mechanical foam with good expansion properties and good re-ignition (burnback) resistance characteristics.

**Fluoroprotein Foam Concentrates** are based on hydrolyzed protein, stabilizers, preservatives and synthetic fluorocarbon surfactants. In applications involving hydrocarbon bulk storage and handling – such as refineries and petrochemical operations – these agents offer several advantages over protein foams. They provide better control and extinguishing ability, greater fluidity and superior resistance to fuel contamination. Fluoroprotein foams are useful for hydrocarbon vapor suppression and extinguishment of fuel-in-depth fires. Fluoroprotein foams, along with AFFF and Alcohol-Resistant AFFF, are also recognized as very effective agents for sub-surface application to hydrocarbon fuel storage tanks.

**High Expansion Foams** are based on combinations of hydrocarbon surfactants and solvents and are used in foam generators – both stationary and portable – for applying foam to large areas in a total flooding or 3-dimensional application such as warehouses, ship cargo holds and mine shafts. They are especially useful on fuels such as liquefied natural gas (cryogenic fuels) for vapor dispersion and control. In certain concentrations, high expansion foams are effective extinguishing agents for flammable liquid spill fires of most types and in confined areas.

**Class A Foams** are typically formulated from a combination of specialty hydrocarbon surfactants, stabilizers, inhibitors, and solvents. They reduce the surface tension of water for improved wetting and penetrating characteristics and create a clinging foam blanket that suppresses combustible vapors while cooling the fuel. Class A foams can be applied using a variety of proportioning/discharge devices and have proven effective in fighting forest fires and many deep-seated fires such as tires, paper, coal bunkers, wooden structures, etc.