



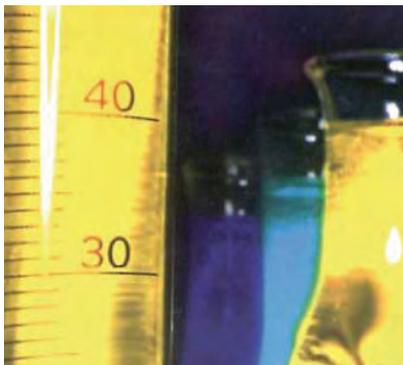
# Oil Technics

FIRE FIGHTING FOAMS

**FOR THE FIRE  
PROFESSIONAL**

## Foam Testing & Fire Fighting Foams

# Foam Testing Services



## Who We Are

Based in Aberdeenshire, Scotland, Oil Technics Ltd specialises in the supply and testing of fire fighting foam concentrates.

Our purpose built foam testing laboratory, graduate staff, ISO 9001:2000 accreditation and over 20 years experience in foam testing enables us to offer a full laboratory service for all foam concentrate types.

## Our Service

All reports are written in plain English. Your report will be sent to you by post, email or fax within 3-5 days of receipt of your sample.

For our UK North Sea customers, in the event of an emergency we offer heliport collection and same day testing.

## Why Foam Testing is Required

Quality foams exhibit excellent storage characteristics. For example, most AFFF manufacturers offer at least a 10 year life for products stored in original and unopened containers.

However, a foam's performance can be compromised by:

- Dilution
- Contamination
- Extremes of Temperature

For these reasons NFPA11, BS 5306 and UKOOA/HSE recommend that: "Foam concentrates and produced foams should be tested on at least an annual basis".

## Required Sample Sizes

### Foam Concentrate Testing

Provide at least:-

- 1 Litre of Foam Concentrate

### Produced Foam Testing

Provide at least:-

- 1 Litre of Foam Concentrate
- 1 Litre Of Induction Water
- 0.5 Litre of Produced Foam

**Note** Samples should ideally be provided in clean, tightly sealed polythene bottles and be labelled with:

- Type of Foam Concentrate/Produced Foam e.g. 3% AFFF-LF
- Name of Company
- Date Sample Taken
- Sample Location Point



For more information, please visit  
[www.foamtesting.com](http://www.foamtesting.com)

# Practical Suggestions on how to take a Foam Sample



## Obtaining Foam Concentrate Sample

The Foam Concentrate sample should be representative of the stored product. The three recognised sample procedures most frequently used are:

### Single Sample

Circulate the stored product to obtain a single homogeneous sample.

### Three Samples

Take a top, middle and bottom sample and composite into a single unit.

### Two Samples

If it is not possible to take 3 samples then take a sample from the top and bottom of the stored product and composite the samples into a single unit.

## Foam Concentrate Sampling Tips

### Bottom Sampling

When taking a sample from the bottom of a foam storage tank, it is important that any sludge, sediment, rust, scale etc is removed before collection of the sample. To do this, draw off at least 5-10L of product before taking a sample.

**Important:** After sampling, do not re-circulate the foam tank until a satisfactory foam report has been obtained



## Produced Foam Sampling Tips

Produced or Expanded Foam samples should represent as closely as possible the foam reaching the designated discharge area.

### Remove standing columns of water

- Before taking a sample, activate the foam system long enough to remove standing columns of water (which otherwise would contribute to a dilute produced foam sample).
- Sample when the system is in equilibrium.

### Collecting samples from nozzles, monitors and overhead sprinklers

- Collect sample from the point of impact in the discharge area.

### Collecting samples from Foam Pourers

- Insert sample container into the edge of produced foam stream and take sample

Photograph on the left shows a typical Critical Foam Concentrate Test (MOD 42/44)



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# Foam Testing - Your Test Report



## Foam Concentrate Test Report

The purpose of a Foam Test Report is to evaluate if the sample tested is in satisfactory condition and most importantly is within the manufacturer's specification.

Each Foam Test Report offers analysis of 10 key features:



• Appearance	• Expansion Rates
• Specific Gravity	• 25% Drainage
• pH	• Viscosity
• Freeze Point	• Fire Extinguishment Properties
• Surface Tension	• Burnback Performance

## Produced Foam Report

The purpose of a produced Foam Test Report is to determine the suitability and accuracy of a foam system's proportioning / induction equipment.

Each Produced Foam Test Report shows the calculated % induction obtained from the sample provided. This result is compared against the two Internationally recognised Foam Standards - **NFPA 11** and **BS 5306**.

## Comparison of NFPA 11 and BS 5306 for Produced Foam Testing

	NFPA 11	BS 5306
1%	1.0 – 1.3%	1.0 – 1.3% ± 10%
3%	3.0 – 3.9%	3.0 – 4.0% ± 10%
6%	6.0 – 7.0%	6.0 – 7.0% ± 10%

## Foam Collection Board



### NFPA 11 Foam Collection Board

Used for obtaining samples of produced foam and for calculating:

- 25% Drainage
- Expansion Ratio



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# Foam Testing Kits



Foam Concentrate and Produced Foam testing should be carried out under laboratory conditions to ensure accurate and consistent results. It is not always possible to access a Foam Laboratory and for these occasions we offer "Field Testing Kits" with an easy to use, step by step manual.

## Produced Foam Test Kit

with Digital Refractometer (or Manual Refractometer)



This Produced Foam Test Kit enables foam induction systems to be easily calibrated. Each kit contains a step by step manual together with worked examples.

Suitable for testing to the following International Produced Foam Test Standards:

- NFPA 11 2002 (paragraphs 10.6.2 and 3)
- BS 5306

Suitable for use with AFFF, Protein and AR Foams.

### Contents

- 250ml Beaker
- 3x 100ml Cylinders
- 3x Sample Bottles
- Foam Testing Manual
- Digital Refractometer
- Carrying Case
- 1ml Syringe

## Foam Concentrate Test Kit

This Foam Concentrate Test Kit enables foam concentrates and produced foams to be checked for physical conformance and for foam % induction. Each kit contains a step by step manual together with worked examples.

Suitable for the determination of:

- SG
- 25% Drainage
- Expansion Ratio
- % Induction

### Note:

For those with access to a laboratory, the manual includes "how to" descriptions for testing:

- pH - requires a pH meter
- Surface tension - requires a surface tension balance
- Viscosity - requires a viscometer

Suitable for use with AFFF, Protein and Alcohol Resistant Foams (not suitable for testing the SG of Alcohol Resistant foams).



### Contents

- 250ml Beaker
- Conical Measure
- 3x Sample Bottles
- Refractometer
- 500ml Beaker
- 1ml Syringe
- Mechanical Scales
- Masses for Scales
- Stopwatch
- Hydrometer 1.000 - 1.050
- Hydrometer 1.050 - 1.100
- Hydrometer 1.100 - 1.150
- Hydrometer 1.150 - 1.200
- Thermometer
- 3x 100ml Cylinders
- Collection Cylinder
- Foam Testing Manual
- Carrying Case



For more information, please visit  
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# Fire Fighting Foam Types



## 1, 3 & 6 % AFFF - LF

AFFF's offer fast fire knockdown and can be used either aspirated or non-aspirated. Typically, first choice for extinguishing fires on offshore platforms, petrochemical installations, hydrocarbon storage, power stations and wherever fast extinguishment is essential for saving life. Available as Freeze Protected (LF) or Non Freeze Protected Foam.

**Approvals:** • UL • ICAO Level B • EN1568



## 3 x 3 AFFF - AR - LF

Alcohol Resistant AFFF's contain a polymeric membrane which prevents the foam blanket breaking down in the presence of alcohol and polar solvents. Used wherever polar solvents, such as, alcohols, glycols, ketones and esters are stored or processed. Also suitable for extinguishing hydrocarbon fires. Typically used offshore in the protection of methanol risks.

**Approvals:** • UL



## 3% FLUOROPROTEIN FOAM

For use at 3% induction on crude oil, gasoline, MTBE and a wide range of Hydrocarbons. Offers exceptional resistance to fuel pick-up and is first choice for fuel storage tank fires using mobile monitors or tank sub-surface injection.

**Approvals:** • UL



## 3% FFFP

For use at a 3% induction for hydrocarbon risk. Film forming, fluorofoam foams exhibits fast fire knockdown. They are the foam of choice when post fire security is important and are often the selected foam for airport fire fighting services. Their tough resealing foam blanket produces a stable cohesive foam with exceptional burn back resistance. Suitable for vapour suppression and unignited hydrocarbon spills.

**Approvals:** • UL • ICAO Level B



## 3 x 3 FFFP - AR

Alcohol Resistant FFFP – AR's offer excellent Low Viscosity (Newtonian) for easy induction down to -18°C. Typically used offshore in the protection of methanol risk and in the petrochemical industry for use at 3% induction for hydrocarbon risk and 3% for Polar Solvent risk.

**Approvals:** • UL



## 1, 3% TRAINING FOAMS

Fluorine Free Foams for onshore training where discharge to the environment is a problem. Providing realistic training, they mimic the induction foam properties of fluorinated foams. Not for use in fighting fires.



## 3% VSF

Vapour Suppression Foams are provided for Alkali or Acid Spills. VSP foams suppress vapours by providing a stable foam blanket over spilled liquids.

For more information,  
please visit



[www.firefightingfoam.com](http://www.firefightingfoam.com)



## Environmental Issues

### PFOS, Fluorine & Discharges to Water

- The foams listed in this brochure are PFOS free.
- Fire fighting foams contain fluorine – a list 1 hazardous substance. Always ask your supplier to select a foam that meets your performance requirements, i.e. UL, ICAO or EN 1568, with the least fluorine content.
- Under Section 89 (1) of the UK Water Resources Act (1991), a person is not guilty of discharging a List 1 substance into any controlled waters, i.e. groundwater, lakes or reservoirs, if the discharge is to **protect life and health**.

#### For The UKCS Offshore Industry

- Fire fighting foams are exempt from inclusion in the Harmonized Offshore Chemical Notification Scheme.
- Fluorine free foams or mimic foams are available for onshore training needs and offshore system calibration

## Independent Foam Test Standards

### Your Guarantee of Performance

Foam concentrates are tested by manufacturers to meet Internationally recognised extinguishment, burnback and proportioning standards.

The three most widely recognised tests are:

- UL162
- ICAO Level B
- EN 1568 parts 1-4

These are critical application tests in that foam concentrates are tested to the minimum application rate required to extinguish a fire (using both sea and potable induction water).

**A quality foam supplier will supply foam concentrates that meet all of these standards.**

### UL – Underwriters Laboratory



An independent not for profit testing house. Internationally recognised test method - UL 162.

This test method requires a 50 sq ft Heptane fire with a pre burn of 60 seconds to be extinguished at an application rate of 2USG/pm.

This is a pass or fail test.

### ICAO Level B

#### International Civil Aviation Organisation



ICAO requires a foam concentrate to be tested to Level A or B for use in Civilian Airports. For offshore fire fighters, the requirements of a foam concentrate to meet ICAO Level B Standard is incorporated into CAP 437 – Offshore Helicopter Landing Area Chapter 5, paragraph 2-5 (see [www.caa.uk](http://www.caa.uk)).

### EN 1568 parts 1-4



A European Standard that critically tests a foam for both extinguishment and burnback in sea and potable water. Not a pass or fail standard. Concentrates are allocated grades of pass, with 1A being the highest grade, i.e. Grade 1-4 for extinguishing performance and Grades A-D for burnback resistance.



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# Foam Selection Chart



	Offshore Platforms & Airfields	Oil Storage Tanks Sub-Surface Injection	Oil Storage Tanks Top Application	Alcohol and Polar Solvents	Vapour Suppression	
					Acid Spills	Alkaline Spills
<b>AFFF</b> Aqueous Film Forming Foam	●●●	●	●●			
<b>AFFF-AR</b> Aqueous Film Forming Alcohol Resistant Foam	●●●	●●	●●●	●●●	●●	●●
<b>FFFP</b> Film Forming Fluoro Protein Foam	●●●	●●	●●			
<b>FFFP-AR</b> Film Forming Fluoro Protein Alcohol Resistant Foam	●●●	●●	●●●	●●●	●●	●●
<b>FP</b> Fluoro Protein Foam	●●	●●●	●●●			
<b>P</b> Protein Foam	●		●			
<b>VSF-ACID</b> Vapour Suppression Foam - Acid					●●●	●●●
<b>VSF-ALKALINE</b> Vapour Suppression Foam - Alkaline					●●●	●●●

●●● 1st Choice   ●● 2nd Choice   ● 3rd Choice



## Manufactured & Supplied by Oil Technics Ltd

### ENGLAND & WALES

The Croft  
Abbots Walk  
Stafford  
England UK ST16 3BN

Tel: +44 (0) 1785 222970

Fax: +44 (0) 1785 225519

stafford@oiltechnics.com

### SCOTLAND & EXPORT

Linton Business Park  
Gourdon  
Aberdeenshire  
Scotland UK DD10 0NH

Tel: +44 (0) 1561 361515

Fax: +44 (0) 1561 361001

info@oiltechnics.com

### WEB

[www.foamtesting.com](http://www.foamtesting.com)

[www.firefightingfoam.com](http://www.firefightingfoam.com)

### eShop

[www.foamtesting.com/shop](http://www.foamtesting.com/shop)