



OILTECHNICS
FIRE FIGHTING
PRODUCTS



FIRE FIGHTING FOAMS & FOAM TESTING SERVICES



CONTENTS

<i>Introduction</i>	<i>PAGE 03</i>
<i>Foam Types</i>	<i>PAGE 04</i>
<i>Non-Fire Fighting Products</i>	<i>PAGE 10</i>
<i>Environmental Issues & C6 Foams</i>	<i>PAGE 11</i>
<i>Foam Standards</i>	<i>PAGE 14</i>
<i>Why is Foam Testing Required?</i>	<i>PAGE 16</i>
<i>Foam Test Reports</i>	<i>PAGE 17</i>
<i>How to Take Foam Samples</i>	<i>PAGE 18</i>
<i>Foam Test Kits</i>	<i>PAGE 20</i>
<i>Foam Testing Equipment & Training</i>	<i>PAGE 22</i>
<i>Foam Compatibility</i>	<i>PAGE 23</i>
<i>Aberdeen Foam: International Standard Summary</i>	<i>PAGE 24</i>



WHO WE ARE

Oil Technics (Fire Fighting Products) Ltd. have been manufacturing and testing fire fighting foam concentrates for over 30 years. From our modern facilities in Aberdeenshire, we are the only foam manufacturer and foam testing laboratory in Scotland and supply industries including the Oil & Gas sector, Military, Aviation, Maritime and Fire Brigades both in the UK and overseas. Our purpose built foam factory and testing laboratory, graduate staff, ISO 9001 and ISO 14001 accreditation and extensive experience enables us to offer world class products and services.

INTERNATIONAL MANUFACTURING

Alongside our manufacturing facilities in Aberdeenshire, Scotland, we now have licensed producers in Malaysia, South Africa and Western Australia.

WHAT WE OFFER

We are the manufacturer and supplier of the **Aberdeen Foam** range of foam concentrates.

We also offer:

- > **Foam testing services**
- > **Free sample bottles & labels**
- > **Foam test kits & equipment**
- > **Training courses**
- > **24 hour telephone advice and support**



WHY CHOOSE US?

- > 30+ year track record
- > Prompt and efficient service – most foams available ex-stock
- > Comprehensive website offers extensive information and online purchasing
- > Telephone support freely available – 24/7 emergency call out available
- > Only foam manufacturer and testing laboratory operating in Scotland

AQUEOUS FILM-FORMING FOAMS

Aberdeen Foam 1%, 3%, 6% AFFF-C6

Aberdeen Foam 1%, 3%, 6% AFFF-LF-C6

- > Designed for fast extinguishment of Class B hydrocarbon fuels such as crude oil, gasoline, kerosene and fuel oil
- > Available as Low Freeze (LF) for offshore use and colder climates
- > Typically first choice for use on offshore oil platforms, petrochemical installations, hydrocarbon storage, production facilities or wherever fast extinguishment is essential
- > Not suitable for use on fuels which are polar solvents and water miscible
- > Suitable for use with either fresh or sea water
- > Fast knockdown
- > Suitable for use in aspirated and non-aspirated systems
- > Minimum storage temperature for AFFF's: 1.7°C (35°F)
- > Minimum storage temperature for AFFF-LF's: -17.8°C (0°F)
tested to UL minimum storage temperature



Approvals

- > UL 162
- > EN 1568:2008 Part 3
- > ICAO Level B
- > IMO MSC.1/Circ.1312

- > For further information please visit www.firefightingfoam.com

ALCOHOL RESISTANT AQUEOUS FILM-FORMING FOAMS

Aberdeen Foam 3x3%, 3x6% AR-AFFF-C6 (Non-Newtonian)

Aberdeen Foam 1x1%, 1x3% AR-AFFF-C6 (Newtonian)

- > Designed for fast extinguishment of fires involving both Class B hydrocarbon fuels such as crude oil, gasoline, kerosene and fuel oil and polar solvents and water miscible liquids such as alcohols, ketones, aldehydes and ethers
- > Versatile fire fighting capability reduces the need to stock different foam types
- > Suitable for use with either fresh or sea water
- > Fast knockdown
- > Suitable for use in aspirated and non-aspirated systems
- > Minimum storage temperature: 1.7°C (35°F)



Approvals

- > UL 162
- > EN 1568: 2008 Parts 3&4
- > LASTFIRE
- > IMO MSC.1/Circ.1312

AIRPORT & AVIATION FOAMS - ICAO LEVELS B & C

Aberdeen Foam 3% AFFF-C6 Airport Foam

- > Specially designed to meet the rigorous requirements of ICAO Level C together with meeting ICAO Level B
- > Quickly extinguishes and secures Class B hydrocarbon fuel fires such as aviation fuel, crude oil, gasoline, kerosene and fuel oil
- > Typically first choice for use in civilian and military airports
- > Not suitable for use on fuels which are polar solvents and water miscible
- > Fast knockdown and film-forming
- > Formulated for use with fresh water (ICAO requirement)

NOTE Aberdeen Foam 1%, 3% and 6% AFFF-LF-C6 and Aberdeen Foam 3% AFFF-C6 are also approved to ICAO Level B



Approvals

- > ICAO Level C
- > ICAO Level B

> For further information please visit www.firefightingfoam.com

FLUORINE FREE FOAMS

Aberdeen Foam 1%, 3% F3

- > New fluorine free foams designed for use on Class B hydrocarbon fires
- > Environmental agency compliant regarding discharge of fluorosurfactants to the environment
- > Not suitable for use on fuels which are polar solvents and water miscible

Approvals

- > Meets the requirements of **EN 1568:2008 Part 3**

FLUORINE FREE FOAMS - ALCOHOL RESISTANT

Aberdeen Foam 1x3%, 3x3% AR-F3

- > New fluorine free foams suitable for use on both Class B hydrocarbon fuel fires such as crude oil, gasoline, kerosene and fuel oil and polar solvents and water miscible liquids such as alcohols, ketones, aldehydes and ethers
- > Versatile fire fighting capability reduces the need to stock different foam types
- > Environmental Agency compliant regarding discharge of fluorosurfactants to the environment

Approvals

- > Meets the requirements of **EN 1568:2008 Parts 3 & 4**





CLASS A FOAMS

Aberdeen Foam 1-3% Class A

- > Foam concentrates designed for Class A applications i.e. paper and tyre, building and forestry fires
- > Highly effective at reducing the surface tension of water to achieve fast penetration and coverage of Class A fires
- > Fluorine free and with good environmental characteristics
- > Formulated for use with either fresh or sea water
- > Can be used at inductions as low as 0.1%
- > Suitable for application by CAF systems, air aspirated and conventional nozzles



Approvals

- > Meets the requirements of **EN 1568:2008 Parts 1 & 3**

Aberdeen Foam FRF (Forest and Rural Fire Retardant)

- > A short term forest fire retardant with excellent surfactant properties
- > Designed to quickly extinguish and secure Class A fires including forest and wildfires
- > Exceptional wetting abilities allows the foam to permeate deep into the fire source, offering fast extinguishment and preventing burnback
- > Easily premixed and excellent foaming properties
- > Formulated for use with either fresh or sea water
- > Use at inductions between 0.1 and 1.0%

Approvals

- > Meets the requirements of **EN 1568:2008 Parts 1 & 3**



HIGH EXPANSION FOAMS

Aberdeen Foam 2% HI-EX

- > Suitable for use with Low, Medium & High Expansion nozzles
- > Ideal for flooding often inaccessible areas involving Class A and Class B fires
- > Assists in oxygen depletion, cooling, vapour suppression and fire extinguishment
- > Produced foam offers high drainage, typically above 10 minutes
- > For use in oil storage applications, marine terminals, power stations and offshore
- > Fluorosurfactant free



Approvals

- > EN 1568:2008 Part 2
- > IMO MSC.1/Circ.1312

TRAINING FOAMS

Aberdeen Foam 1%, 3% Training Foam (Synthetic)

- > Fluorine free synthetic based training foam concentrates
- > Mimics the properties of fire fighting foam for realistic training scenarios
- > Also suitable for testing the calibration of foam induction systems
- > Environmental agency compliant regarding discharge of fluorosurfactants

INDUCTION TESTING FOAM FOR SYSTEM CALIBRATION

Induction Foam

- > An environmentally tested, fluorine free foaming liquid for use in induction testing in environmentally sensitive areas
- > Suitable for use offshore - HOCNF/Cefas approved chemical components
- > Designed to mimic the induction performance of produced foams for system calibration, without the need for foam discharge
- > Uses an environmentally safe liquid to achieve system calibration by measuring the refractive index of the inducted liquid
- > Fluorosurfactant free, readily biodegradable and not subject to disposal regulations



VAPOUR SUPPRESSION FOAMS

Aberdeen Foam 6% VapourShield (Acid), 6% VapourShield (Alkali)

- > Designed to provide stable vapour suppressing foams when used at 6% concentration
- > Available for use on both acid and alkali liquid spills
- > Provides stable, slow draining foams to effectively suppress vapours from accidental chemical spills
- > Suitable for use with either fresh or seawater

ANTIFOAMING AGENT

D-Foamer

- > Designed to defoam liquids and prevent hydrocarbon and foam carry over to surface separators
- > Quick to apply and easy to use
- > Simply dilute and spray over the foam blanket

FOAM SEALING OIL - TANK STORAGE

Foam Seal Oil

- > Designed for use as a sealing barrier on foam concentrate to minimise evaporation and deterioration
- > Remains on the surface of the foam concentrate while stored in your tanks
- > Stable and non-reactive

- > For further information please visit www.firefightingfoam.com



FLUORINE FREE FOAMS: AN ALTERNATIVE TO AFFF'S?

Oil Technics (Fire Fighting Products) Ltd manufacture a range of Fluorine Free Fire Fighting Foam Concentrates, also known as F3 Foams.

In our opinion, present F3 Foam technology is a poor substitute for Aqueous Film Forming Foam (AFFF) concentrates.

- > F3 foams are not film forming, and therefore require three times or more of the application rate of an AFFF.
- > F3 foams do not, at time of writing, meet International Foam Standards UL 162 or ICAO Level C
- > Freeze protected F3 foams suitable for use offshore have not been developed
- > F3 foams can not be mixed with other foam types
- > F3 foams can not be laboratory fire tested as they are not film forming.

For these reasons, we **do not recommend the use of F3 foams** for critical fire protection in the upstream and downstream Oil & Gas industry.

WHICH FOAM IS BEST FOR THE ENVIRONMENT?

The truthful answer is: **whichever one is best at putting out fires!**

- > All foams are polluting, as they contain a wide range of polluting chemicals such as detergents, surfactants and solvents
- > Fire water run off is polluting

In order to minimise the pollution released into the environment:

- > Always carry out training exercises using Training Foams (see page 9)
- > Always calibrate your induction systems using Induction Testing Foam (see page 9)
- > Always use a fire fighting foam approved by:
 - > ECHA in Europe
 - > EPA in the USA
- > Always ensure fire water run off is captured
- > **Always use the fire fighting foam which is best suited to your fire risk,** ie tested to the relevant International Standards such as UL 162, ICAO Levels B&C, EN 1568:2008 and IMO MSC.1/Circ.1312

- > For further information, contact our Technical Department or visit www.firefightingfoam.com

C6 FOAMS: A BRIEF HISTORY

PFOA & FLUROSURFACTANT RESEARCH

Fluorosurfactants are synthetic fluorinated chemicals with varying carbon chain lengths, designed to lower the surface tension of water. They are used in the manufacture of many different products, including Fire Fighting Foams. However, it was discovered that a chemical called **Perfluorooctanoic acid (PFOA)** is an unintentional by-product of the telomer manufacturing process used in the production of fluorosurfactants.

PFOA is a man-made chemical with a carbon chain length of C8 which is toxic, bioaccumulative and very persistent. PFOA has been found at very low levels in the environment, in the blood of the general population since 1960 and has been shown to cause adverse effects in laboratory animals.

In 2003, a fluorosurfactant working group was formed by the Environmental Protection Agency (EPA) in the USA and it concluded that:

- > Fluorosurfactants with an R_f carbon chain length greater than C6 could potentially degrade and form PFOA and would therefore be classed as being toxic to the environment.
- > Fluorosurfactants with an R_f chain length of C6 or less can not degrade into PFOA.

In response to this research and with the aim to reduce the global potential for human exposure to PFOA, in 2005 the EPA convened what was known as **2010/15 PFOA Stewardship Programme**.

WHAT IS THE 2010/15 PFOA STEWARDSHIP PROGRAMME?

The 2010/15 PFOA Stewardship Programme asked all manufacturers of long chain fluorotelomers and other long chain fluorinated compounds (LCPFC'S) - including fluorosurfactants used in the manufacture of Fire Fighting Foam concentrates - to voluntarily **stop the production and use of fluorinated compounds with a carbon chain greater than C6 by year-end 2015**.

European and worldwide manufacturers committed to this programme, meaning **fluorinated compounds with carbon chains greater than C6 are no longer available**.

FIRE FIGHTING FOAM & THE MOVE TO C6

Fire fighting foam concentrates are traditionally manufactured using fluorosurfactants with a carbon chain length between C6 and C12. Under the requirements of the EPA Stewardship Programme, fluorosurfactants with a carbon chain length greater than C6 are no longer available.

Consequently, all fire fighting foam manufacturers were required to:

- > **reformulate** their foam concentrates using C6 fluorosurfactants
- > **retest** these new foam concentrates to meet International standards, such as UL 162, ICAO Level B and EN 1568:2008 Part 3.

MILESTONES ON THE ROAD TO C6

- > In 2014, the US-EPA issued a SNUR (Significant New Use Rule) banning the manufacture, importation or processing of LCPFC's.
- > In early 2016, the Committee for Risk Assessment (RAC) and Committee for Socioeconomic Analysis (SEAC) released a statement declaring the maximum quantifiable limits of PFOA and PFOA-related substances allowed in C6 telomer chemistry within the EU.
An exemption was allowed for fire fighting foam which uses C6 chemistry.
- > Following on from the RAC and SEAC statement, the ECHA issued an exemption ruling which allows AFFF's using C6 technology to be manufactured and sold within Europe.

For the fire fighting industry, these developments meant:

- > C6 Fire Fighting Foams are - finally - **approved for use by the EPA in the US and ECHA In Europe.**
- > Most importantly, it also means **AFFF's using a carbon chain length greater than C6 can no longer be manufactured or sold in the USA or Europe.**

NEW EUROPEAN REGULATION REGARDING PFOA IMPURITIES

- > In June 2017, European Commission Regulation EU 2017/1000 was published regarding the allowable amount of impurities of PFOA, its salts and PFOA-related substances in products containing LCPFC's, including fire fighting foam concentrates.
- > The regulation requires that **by 4th July 2020**, fire fighting foam concentrates must not include a concentration greater or equal to:
 - > **25 parts per billion** for PFOA and its salts
 - > **1000 parts per billion** (1 part per million) for PFOA-related substances.

ABERDEEN FOAM MEETS EU REGULATION THREE YEARS EARLY!

Our range of Aberdeen Foam AFFF-C6 concentrates already meet EU 2017/1000 - and contain considerably fewer than the maximum quantities allowable under this regulation - **three years before it comes into force!**

Component	Amount allowable under EU regulation EC 2017/100	Amount contained in a typical produced Aberdeen Foam AFFF-C6
> PFOA or its salts	≤25ppb	0.015ppb
> PFOA-related substances	≤1000ppb	0.54ppb

1 part per billion = 0.0000001%, meaning that Aberdeen Foam concentrates contain 0.0000000015% PFOA or its salts and 0.000000054% PFOA-related substances.



- > For further information, contact our Technical Department or visit www.firefightingfoam.com

YOUR GUARANTEE OF PERFORMANCE

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

A quality foam supplier will supply foam concentrates that meet one or more of the following standards:

- > UL 162
- > EN 1568:2008 parts 1-4
- > ICAO Level B & C
- > IMO MSC.1/Circ.1312

These are critical application tests where foam concentrates are tested to the minimum application rate required to extinguish a fire.

UL 162 - OFFSHORE PLATFORMS



- > Internationally recognised test method carried out by the UL (Underwriters Laboratory), an independent not-for-profit organisation.
- > UL 162 requires a 50 sq ft heptane fire with a pre-burn of 60 seconds to be extinguished at an application rate of 1.63L/m² using a freeze protected foam with potable (fresh) and sea water.
- > This is a pass or fail test.
- > UL listed products are monitored with samples being sent to UL every 3 months for conformance testing.

EN 1568:2008 Parts 1-4



- > A European Standard that critically tests a foam for both extinguishment and burnback in potable (fresh) and sea water.
- > Not a pass or fail standard - concentrates are allocated grades of performance, ie Grade 1-4 for extinguishing performance and Grades A-D for burnback resistance. 1A is the highest achievable grade.
- > EN 1568 approved products are not conformance monitored after accreditation.
- > **Part 1** applies to medium expansion foam for use on water-immiscible liquids.
- > **Part 2** applies to high expansion foam for use on water-immiscible liquids.
- > **Part 3** applies to low expansion foam for use on water-immiscible liquids.
- > Requires a 4.52m² heptane fire with a pre-burn of 60 seconds to be extinguished at an application rate of 2.52L/min/m² using foam with potable and sea water.
- > **Part 4** applies to low expansion foam for use on water-miscible liquids.
- > Requires a 1.72m² acetone fire with a pre-burn of 120 seconds to be extinguished at an application rate of 6.6L/min/m² using foam with potable and sea water.



ICAO LEVEL B & C - ONSHORE AIRPORTS & HELIDECKS (UK)



- > The CAA (Civil Aviation Authority) requires a foam concentrate for use in Civilian Airports to be tested using potable water to ICAO Level A, B or C.
- > For UK offshore helidecks, the standard adopted by the CAA is CAP 437 – Standards for Offshore Helicopter Landing Areas, Chapter 5, paragraph 2.6.
- > Unfortunately, CAP 437 requires compliance to at least ICAO Level B using foam tested in sea water and freeze protected - a standard that does not exist!
- > However, CAP 437, paragraph 2.6 does allow the foam manufacturer to advise on performance - we recommend UL 162 as the preferred standard for offshore helidecks.
- > ICAO approved products are not conformance monitored after accreditation.
- > **ICAO Level A** requires a 2.8m² fire to be extinguished at an application rate of 4.1L/min/m².
- > **ICAO Level B** requires a 4.5m² fire to be extinguished at an application rate of 2.5L/min/m².
- > **ICAO Level C** requires a 7.32m² fire to be extinguished at an application rate of 1.75L/min/m².
- > All levels require a heptane fire with a 60 second pre-burn and using potable water.

IMO MSC.1/Circ.1312 & MSC Circ.670 - MARITIME



- > The IMO (International Maritime Organization) standards ensure that foam used at sea is fit for purpose and takes into consideration performance with sea water induction and temperature conditioning (accelerated ageing).
- > These standards are now required by many maritime administrations and classification bodies for foam concentrates to be used on board ships in international waters and have arisen as part of the implementation of the SOLAS Convention (Safety of Life at Sea).
- > IMO MSC.1/Circ.1312 sets out the protocols and criteria for Low Expansion foam.
- > IMO MSC Circ.670 sets out the protocols and criteria for High Expansion foam.

LASTFIRE - HYDROCARBON STORAGE TANKS



- > The LASTFIRE project (Large Atmospheric Storage Tanks) was initiated in the 1990s on behalf of a consortium of 16 oil companies to review the risks associated with large diameter (greater than 40m) open top floating roof storage tanks.
- > Part of this project was to develop a foam testing protocol to assess a foam's capability to achieve the special performance characteristics relevant to large storage tank fire fighting.
- > The LASTFIRE test was quickly established as a standard for this severe application and has been included as a requirement in foam concentrate procurement specifications by major international oil companies.
- > For further information please visit www.firefightingfoam.com

THE PURPOSE OF TESTING FOAM CONCENTRATES

Modern, high quality foam concentrates are very stable and are excellent candidates for long term storage, with minimal or no effects on performance.

Most reputable foam concentrate manufacturers offer at least a 10 year life for products correctly stored and in original containers with the manufacturer's seal still intact (unopened).

However, the performance of a foam concentrate can be compromised by the following factors:

- > Dilution
- > Contamination
- > Extremes of temperature

For these reasons International Standards:

- > NFPA 11: 2016
- > UKOOA/HSE
- > BS EN 13565-2: 2009

make the following recommendation:

“At least annually, an inspection shall be made of foam concentrates... for evidence of excessive sludging or deterioration.

Samples of concentrates shall be sent to the manufacturer or qualified laboratory for quality condition testing.”

NFPA 11, 2016 Edition, 12.6.1 and 12.6.2



We provide a Worldwide Foam Testing Service from our leading independent Foam Testing Laboratory, bringing experience & expertise direct to your doorstep! All test reports are written in plain English. We aim to send your report to you by email or post within 5 working days of receipt of your sample. In the event of an emergency, we offer same day testing and, for our UK North Sea customers, heliport collection.

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, to enable the customer or laboratory to confirm the foam is within the manufacturer's specification.

Each Foam Concentrate Test Report offers analysis of 10 key features:

> Appearance	> Surface Tension	> pH	> Viscosity
> Specific Gravity	> Expansion Rate	> Sedimentation	
> Freeze Point	> 25% Drainage	> Fire Extinguishment (Synthetic)	

PRODUCED FOAM TEST REPORT

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

Each report shows the calculated % induction of the sample provided. This result is compared against international Foam Standards **NFPA 11: 2016** & **BS EN 13565-1: 2003**.

Standard:	NFPA 11: 2016	BS EN 13565-1: 2003
1%	1.0 - 1.3%	1.0 - 1.3%
3%	3.0 - 3.9%	3.0 - 3.9%
6%	6.0 - 7.0%	6.0 - 7.0%

IMO FOAM CONCENTRATE TEST REPORT

This testing, as specified by International Maritime Organisation (IMO) MSC.1/ Circ.1312 Annex 4, is required by many maritime administrations and classification bodies to be done as periodical control of stored foam concentrates on board ships in international waters.

Each IMO Foam Concentrate Test Report offers analysis of 8 key features:

> Appearance	> Density	> pH
> Kinematic Viscosity	> Expansion Rate	> 25% Drainage
> Sedimentation	> Resistance to solvents (Fire Tray Test)	

SAMPLING FOAM CONCENTRATE FROM A TANK

If a foam concentrate is contaminated or degraded, samples taken from the top and bottom of a storage tank are likely to have different physical properties. For this reason, we recommend concentrates should not be circulated prior to sampling.

Normally, two samples per storage tank are taken:

- > One sample from the bottom (1 Litre).
- > One sample from the top (1 Litre).



If you have access to a tank sampling jar with removable bung, we recommend taking an additional 1 Litre sample from the middle of the tank.

The contents of a tank should not be circulated where dilution or contamination of the foam concentrate is suspected to have occurred. We also recommend that the tank is labelled with "Awaiting Foam Test Results" and the date that the sample was taken.

Once the samples have been taken, the tank should not be circulated until the samples have been tested and the results obtained. However, if it is only possible to take one sample, then circulate the tank to obtain a 'composite sample' prior to taking a 1 Litre sample.

SAMPLING FOAM CONCENTRATE FROM THE BOTTOM OF A TANK

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.

SAMPLING FOAM CONCENTRATE FROM A DRUM

- > Take a 1 Litre sample from the top of the drum.
- > Vigorously shake the drum and take an additional 1 Litre sample.

TAKING A PRODUCED FOAM SAMPLE

Provide at least:

- > 1 Litre of foam concentrate
- > 1 Litre of induction water
- > 0.5 Litre of produced foam

Produced foam samples should be taken from as close as possible to the point where the foam reaches the designated discharge area.



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

Collecting samples from nozzles, monitors & 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 a sample.

LABELLING SAMPLES

Ensure that the labels are completed immediately after filling the sample container. To be able to interpret the test results correctly, all the label information must be accurate.

The container **MUST** be labelled with the following information at a minimum:

- > Company name
- > Foam type
- > Brand name
- > Concentration (ie 1%, 3%, 6%)
- > Date of sample collection
- > Sample source (tank or drum number, top, middle or bottom and any other relevant information)

If you would like to receive free sample bottles and labels, please contact us.

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 **Foam Test Kits**, supplied with an easy to use manual.

PRODUCED FOAM TEST KIT

This Produced Foam Test Kit enables foam induction systems to be easily calibrated. Contains a step by step, easy to follow manual, together with worked examples.

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

- > NFPA 11: 2016 Edition, Chapter 12
- > BS EN 13565-1: 2003, Section 7

Suitable for use with AFFF, Protein and Alcohol Resistant Foams.

Contents

- > Produced foam testing manual
- > Digital refractometer
- > 3 x sample bottles
- > 3 x 100ml cylinders
- > 250ml beaker
- > 1ml syringe
- > Carrying case



FOAM CONCENTRATE TEST KIT

Suitable for testing AFFF, Protein and Alcohol Resistant Foams. Each Foam Concentrate Kit contains a step by step, easy to follow manual, together with worked examples.

With additional laboratory equipment, can be used to determine:

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

Designed for use with produced foam to determine:

- > Specific gravity
- > 25% drainage
- > Expansion ratio
- > % induction

Note:

Determining expansion ratio, % induction and 25% drainage requires the use of an NFPA 11 foam collection board and an installed foam system.

Contents

- > Foam concentrate testing manual
- > Produced foam testing manual
- > Mechanical scales
- > 250ml beaker
- > 500ml beaker
- > 3 x 100ml cylinders
- > Masses for scales
- > NFPA 11 foam collection cylinder
- > NFPA 11 foam collection stand
- > Conical measure
- > Thermometer
- > 3 x sample bottles
- > Digital refractometer
- > Stopwatch
- > 1ml syringe
- > Carrying case
- > 4 hydrometers
(ranges 1.000 - 1.050, 1.050 - 1.100, 1.100 - 1.150, 1.150 - 1.200)



For further information please visit www.firefightingfoam.com

TRAINING COURSES

We provide in-house training courses on **Produced Foam** testing. This course provides extensive technical background and hands-on experience in all aspects of produced foam testing and, on completion, attendees are presented with a Certificate of Competency.

- > **Produced Foam Test Courses** last approximately half a day.

For further information on pricing and availability, please contact us.



FOAM COLLECTION BOARDS

Used for obtaining samples of produced foam and calculating:

- > 25% drainage
- > Expansion ratio

Built to international standards NFPA 11 or ICAO specifications.

Designed to hold NFPA 11 foam collection cylinder (included in Foam Concentrate Test Kit) or ICAO foam collection cylinder.



FOAM COLLECTION TRIPODS & STANDS

Enables produced foam samples to be measured correctly.

For use in calculating:

- > 25% drainage
- > Foam expansion

Designed to hold NFPA 11 foam collection cylinder (included in Foam Concentrate Test Kit) or ICAO foam collection cylinder.



FOAM TESTING PANS & BRANCH PIPES

We supply a range of fire pans and branch pipes for the testing of foam concentrates to international standards.

Pans are available to the following specifications:

- > UL 162
- > ICAO Levels B & C
- > MIL-F 24385-F
- > EN 1568: 2008 Parts 3&4



NFPA 11

NFPA 11: 2016 Edition makes the following recommendations:

- > “**Different brands** of the same type of concentrate shall not be mixed unless data are provided by the manufacturer ... to prove they are compatible.” (Para. 4.4.1.2)
- > “**Different types** of foam concentrate shall not be mixed for storage.” (Para. 4.4.1.1)

FOAM COMPATIBILITY

In accordance with NFPA 11: 2016, quality synthetic foam concentrates of the **same type** from **different suppliers** can be mixed, provided that the supplier presents a Certificate of Compatibility (C of C).

Compatibility testing consists of:

- > Freeze / thaw ageing
- > Performance testing

To be given a C of C, the foam concentrate should show no reportable adverse reactions.

PLEASE NOTE

- > Quality foam usually refers to those tested and accredited to International Standards such as UL 162, ICAO Levels B & C, EN 1568: 2008 and IMO MSC.1/Circ.1312.
- > We recommend that Alcohol Resistant (AR) foams are never mixed.



ABERDEEN FOAM: A SUMMARY OF OUR INTERNATIONAL STANDARDS

FOAM CONCENTRATE	UL 162	ICAO Level B	ICAO Level C	EN 1568: 2008 Part 2	EN 1568: 2008 Part 3	EN 1568: 2008 Part 4	IMO MSC.1/ Circ.1312	LAST FIRE
1% AFFF-LF-C6	✓	✓			✓		✓	
3% AFFF-LF-C6	✓	✓			✓		✓	
6% AFFF-LF-C6		✓					✓	
1% AFFF-C6	✓				✓		✓	
3% AFFF-C6	✓	✓			✓		✓	
6% AFFF-C6					✓		✓	
3% AFFF-C6 AIRPORT FOAM		✓	✓					
1x1% AR-AFFF-C6					✓	✓	✓	
1x3% AR-AFFF-C6					✓	✓	✓	
3x3% AR-AFFF-C6	✓						✓	✓
1% F3					✓			
3% F3					✓			
1x3% AR-F3					✓	✓		
3x3% AR-F3					✓	✓		
2% HI-EX				✓			✓	

www.firefightingfoam.com

Manufactured & supplied by:

Oil Technics (Fire Fighting Products) Ltd

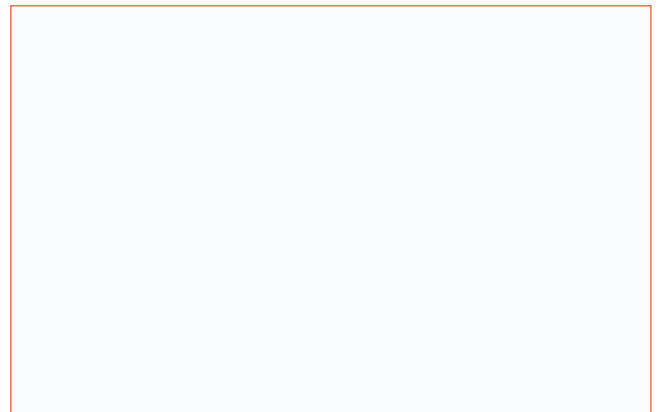
Linton Business Park, Gourdon,

Aberdeenshire, Scotland UK DD10 0NH

T: +44 (0) 1561 361515 F: +44 (0) 1561 361001

E: info@firefightingfoam.com W: www.firefightingfoam.com

Your local distributor:



Part of the OTL Group of Companies



Copyright © Oil Technics (Fire Fighting Products) Ltd. 2019

Photographs on pages 4, 8 & 11 used by kind permission of Angus Fire Ltd.

All information correct at time of publication. Oil Technics (Fire Fighting Products) Ltd. reserve the right to modify any specification at any time and without prior notice.