



**OILTECHNICS**  
FIRE FIGHTING  
PRODUCTS



# UK & EU FOAM UPDATE

An explanation of recent changes in UK and European Law affecting Firefighting Foam

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

**This brief overview highlights the most important recent firefighting foam regulatory developments - ensuring you are kept informed.**

It is important to us that you are kept informed and encouraged to remain within UK firefighting foam regulations.

Although every effort has been made to ensure this information is accurate, if you have any extra questions to those answered below or would like any further details on any of the content provided, please don't hesitate to contact us.

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## FLUROSURFACTANTS, PFAS & C6 FOAMS: A BRIEF HISTORY

**Fluorosurfactants are synthetic fluorinated chemicals or PFAS (Per- or Poly- Fluorinated Alkyl Substances) used in the manufacture of many diverse consumer and industrial products, including firefighting foams.**

PFAS come in two main classes:

- > Legacy long-chain (greater than or equal to 7 carbon chains, or C8-PFAS) which have been widely restricted from manufacture and use since 2015 due to persistent, bioaccumulative and toxic characteristics, and
- > Short-chain (less than or equal to 6 carbon chains, or C6-PFAS) which are more environmentally benign and are currently manufactured and widely used during major fire emergencies.
- > **Oil Technics converted ALL its fluorinated firefighting foams to contain only high purity C6-PFAS during 2015.** No C8- PFAS foams have been manufactured by Oil Technics since 2015.

Long-chain C8-PFAS have had legacy contamination issues affecting human health and environmental contamination, so are increasingly being restricted or prevented from use, particularly in UK, EU, USA, NZ, Australia etc.

It was discovered that an unintentional by-product of the C8 fluorotelomer manufacturing process was a chemical called Perfluorooctanoic acid (PFOA). PFOA is toxic, bioaccumulative and very persistent. PFOA has been found at very low levels in the environment, in the blood of the general population (although declining over recent years) and has been shown to cause adverse effects in laboratory animals.

In 2003, a study by the Environmental Protection Agency (EPA) in the USA concluded that:

- > C8-PFAS with a carbon chain length of C7 or greater could potentially degrade to form PFOA.
- > C6-PFAS with a chain length of C6 or less cannot degrade into PFOA.

This study's conclusions led in 2006 to the US EPA PFOA Stewardship Programme 2010-2015. This voluntary Programme motivated all manufacturers of C8-PFAS - including fluorosurfactants used in fluorinated firefighting foams - to voluntarily stop production of fluorochemicals with carbon chain lengths greater than C6 by year-end 2015, so PFOA production would be virtually eliminated.

Leading worldwide manufacturers committed to this programme, meaning long chain C8-PFAS are no longer available, ceasing production in late 2015 (except in China and perhaps Russia).

As fluorinated firefighting foams had formerly contained C6-C12 fluorosurfactants, firefighting foam manufacturers were consequently required to:

- > reformulate all their foam concentrates to use only short-chain C6 fluorosurfactants or exclude fluorinated chemicals altogether with Fluorine Free Foam alternatives (F3s).
- > retest these new foam concentrates to meet Internationally accepted fire standards and product approvals.

All leading manufacturers, including Oil Technics, completed this task by end 2015, although further developments and fire performance improvements are on-going.



## 10-YEAR DEROGATION FOR C6 AFFF-LF FOAMS USED ON OFFSHORE INSTALLATIONS

ECHA's Committee for Socio-Economic Analysis (SEAC) are recommending a 10-year derogation for the use of C6 AFFF-LF Foams in the North Sea, bringing it in line with high hazard Seveso III sites.

- > This SEAC recommendation will be forwarded to ECHA who will publish their final opinion, forwarding it to the European Commission for review.
- > SEAC have considered feedback from over twenty companies and industrial bodies connected with the firefighting profession - including firefighting foam manufacturers such as Oil Technics.
- > The decision follows SEAC's previous approval of a ten-year derogation period for use of C6-AFFFs for sites covered by the Seveso III Directive.
- > The above information appears to infer that Oil Technics, Offshore Energies UK, and other's compelling submissions for the offshore industry to be given special consideration may have been accepted.
- > In a recent podcast ECHA's Safer Chemicals, chair of SEAC Maria Ottati stated:



... a review of available fluorine-free alternatives [to AFFF] ... would be needed for uses at offshore installations in the oil and gas industry, where SEAC is recommending to lengthen the transition period from five to 10 years. The committee considers the reviews important to maintain safety where fires may have high impacts on the environment and human health.



## ECHA PROPOSED AFFF TRANSITION PERIODS TO F3

ECHA has proposed the following transition periods from Fluorinated Foams to Fluorine Free Foams (F3).

- > Transition periods vary depending on sector and were based on availability of suitably effective alternatives, capacity for containment of releases during use (eg. bunding) and time required to practically implement transitions (including system design adaptation, equipment changes, availability, cleanout during shut-down/maintenance periods, etc):

Sector/type of use or placing on the market	Transitional period after entry into force <sup>#</sup>
> Seveso III establishments	10 years
> <b>Offshore installations</b>	<b>10 years*</b>
> Civilian aviation	5 years
> Defence	3 years
> Municipal fire services	18 months
> Ready-to-use applications	5 years
> Marine applications	5 years*
> Other industries	3 years
> <b>Foam for training and testing</b>	<b>18 months*</b>
> Formulation	10 years

\* As detailed above, this transition period is currently a recommendation by SEAC.

# These periods have been proposed, but some may gain possible extension following consideration of public consultation submissions.



## NEW REGULATIONS FOR USING FLUORINE FREE FOAMS FOR TRAINING OR SYSTEM TESTING (PROPORTIONING)

The European Commission (EC) recommends immediate withdrawal of fluorinated foams used for firefighter training and system calibration and proportioning testing.

- > The proposed ban on the use of fluorinated foams for training, system testing and calibration has a derogation period of just 18 months (reflected in the ECHA Transition Periods Table above), but recommends this is implemented **as soon as practically possible**.
- > This recommendation applies to all firefighting foams containing above 1 ppm (mg/L) PFAS.
- > Exception is given for functional testing where all foam used is fully contained, collected and disposed of safely according to regulations.

Oil Technics can offer its customers a choice of Aberdeen Fluorine Free Foams for training or system testing:

### 1% Training Foam

Fluorine Free Training Foam



### 3% Training Foam

Fluorine Free Training Foam



### Induction Foam

Fluorine Free System  
Calibration Foam



## NEW ECHA PFAS REGULATIONS AND RESTRICTIONS FOR FIREFIGHTING FOAMS

- > UK Persistent Organic Pollutants (POPs) regulations, published by the Environment Agency (EA), cover legacy C8-PFAS chemicals:
  - > PFOS
  - > PFHxS (defined by UN OECD as C8-PFAS), and
  - > PFOA (previously present in legacy Lightwater™ AFFF/AR-AFFFs from ElectroChemical Fluorination process, which ceased production in 2002/3 outside China and perhaps Russia).
- > **Most of these legacy foams have already been removed from service and disposed of safely in accordance with EA regulations.**
- > PFOA can also breakdown from Fluorotelomer based AFFF/AR-AFFFs, which ceased production at end 2015.
- > Companies are required to identify and produce an inventory to UK EA of any POP stockpiles where C8-PFAS chemicals, including PFOA, are measured and confirmed to be above relevant contamination thresholds.
- > **All Aberdeen foams purchased since end 2015 comply with strict current UK/EU regulations**, requiring any residual PFOA in firefighting foams to be below acceptance levels (ie. less than 25 ppb [ $\mu\text{g/L}$ ] PFOA and its salts, and less than 1,000 ppb of PFOA related substances, including pre-cursors).

**All Aberdeen AFFF Firefighting Foams are stringently monitored during production to ensure they meet acceptably low trace quantities of PFOA and other PFAS of concern, which are well below threshold levels, so they fully comply with all current regulations (as shown on page 9).**

- > UK Persistent Organic Pollutants (POPs) regulations, ratifying the UN Stockholm Convention and published by the Environment Agency in March 2022, require companies to identify and produce an inventory of POP stockpiles where C8-PFAS is measured and confirmed to **exceed** relevant acceptance thresholds.
- > Any such foam concentrates **must be removed from use immediately**, notified to EA, quarantined and labelled prior to safe disposal by high temperature incineration (above 1,100°C in accordance with EA requirements).



Component	Allowable Limits under UK POPs Regulations	Allowable Limits under EU POPs Regulation 2019/1021
> PFOS or its salts	≤ 10 ppb salts & related substances combined	≤ 10 ppb
> PFOS-related substances	Included above	≤ 1000 ppb

Component	Allowable Limits under UK POPs Regulations and EU POPs Regulation 2019/1021
> PFHxS or its salts	≤ 25 ppb
> PFHxS-related substances	≤ 100 ppb firefighting foams, ≤ 1,000 ppb substances & mixtures

Component	Allowable Limits under UK POPs Regulations and EU POPs Regulation 2017/1000
> PFOA or its salts	≤ 25 ppb
> PFOA-related substances	≤ 1000 ppb

- > In addition to PFOA, REACH has published its draft proposal on the restriction of PFHxA, its salts and related substances in the European Commission Comitology register with proposed restriction for firefighter training, testing and Municipal Fire Brigades in 18 months and firefighting foams for Civil Aviation after five years (from implementation), with residual levels:

Component	REACH Proposed Regulation Levels
> PFHxA or its salts	≤ 25 ppb
> PFHxA-related substances	≤ 1000 ppb

- > PFAS levels within foam concentrates can be measured specifically (using regular 28 PFAS suite analysis), or collectively (using an advanced TOP Assay analysis method for TOTAL PFAS content).
- > **Even modern C6 foams, if stored in tanks with residual C8 foam, could cause non-compliance.**
- > Oil Technics can facilitate testing of your foam concentrate to ensure compliance: see below for more information.

## TESTING AFFF FOAM CONCENTRATES FOR PFAS COMPLIANCE

- > TOP (Total Oxidisable Precursors) Assay or TOF (Total Organic Fluorine) can also be important for any final rinse water after tank cleaning, before refilling with new F3 agents, to provide verification to regulators that the tanks are adequately clean and the new foam is not contaminated with any unintended residual legacy PFAS (above stringent acceptance levels).
- > Many foam users have a range of foam stocks which may vary in age, may have mixed brands, or contain different batches present. It is therefore important to establish whether these older stocks meet current UK POP regulations. If not, they will have to be disposed of safely using high temperature incineration (>1,100°C).

**Oil Technics can facilitate such testing of your foam concentrates to ensure that existing foams are C6 compliant, do not contain legacy long-chain C8-PFAS chemicals (eg. PFOS, PFOA or PFHxS) and thereby would not meet current UK POPs or EU PFAS restriction regulations.**

- > Oil Technics foam testing service can arrange PFAS content testing of specific foam concentrates for which you may have concerns, which can be conducted at competitive rates. This will be carried out by specialised and approved laboratories qualified to conduct such PFAS content analysis on your behalf, with a report on the regular 28 suite PFAS assessment (identifying how much PFOS, PFOA, PFHxS and other common legacy PFAS may be present), with analysis report provided accordingly.
- > However, firefighting foams often contain a variety of more difficult to determine pre-cursor chemicals which degrade over time to known end-point PFAS, like PFOS and PFOA. To quantify the amount of these PFAS pre-cursors present, an additional analysis is required.
- > This additional analysis could be either a TOP Assay or TOF Analysis, conducted at extra cost to regular 28 suite PFAS testing, but importantly verifies the total level of PFAS present in any specific representative sample of existing bulk foam tank stocks.
- > This is also a valuable test to conduct on final rinse water when cleaning foam storage tanks, to verify residual levels of PFAS do not exceed Authority's mandated requirements.
- > This analysis (TOP or TOF) can also be used to verify that any replacement Fluorine Free Foams (F3) being purchased do not unintentionally or inadvertently contain PFAS beyond accepted trace levels, before decanting into pre-cleaned storage tanks.

- > EU acceptance levels in ECHA's (European Chemicals Agency) recent SEAC (Socio-Economic Analysis Committee) draft opinion is currently proposed at 1 ppm of residual PFAS in cleaned tanks, final rinse water and new F3 concentrates. It was made clear this residual level does not provide any increase in effectiveness of foam concentrates, indicating this limit value is sufficiently low to prevent intentional use of PFAS in non-fluorinated firefighting foams.
- > However, considering the high cost of removing last traces of contamination in complex offshore systems, SEAC supported the proposal of a higher residual limit value of 50 ppm PFAS specifically for offshore cleanout of already PFAS contaminated foam systems.
- > Testing of your foam concentrate by a qualified specialised laboratory is important to verify its composition. This will determine whether it needs replacing or not, as stockpiles of legacy C8-PFAS containing foam concentrate greater than 50 kg that do not conform with current Environment Agency (EA) restrictions, must immediately be:
  - > notified to the EA
  - > quarantined, labelled and no longer used
  - > safely disposed of appropriately to EA requirements (ie. high temperature incineration >1,100°C)

Oil Technics can offer TOP Assay or TOF Analysis testing to ensure foam concentrates comply with local regulations and policies.

We only require 250 mL of foam concentrate, provided in bottles we will supply, to determine PFAS levels.

- > TOP Assay is a hydroxyl radical based oxidation reaction. Precursors are transformed to end-point carboxylic or sulfuric perfluoroalkylic acids (PFAAs) in such reactions. The evaluation of pre- and post-TOP Assay data can therefore offer a clear view of total PFAS present in specific samples.

To enquire about having your foam TOP Assay or TOF Analysis tested, please contact us:

E-mail: [info@foamtesting.com](mailto:info@foamtesting.com)

Tel: +44 (0) 1561 361515



## ABERDEEN FOAM & INTERNATIONAL STANDARDS

**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\*
- > ICAO Levels B & C
- > BS EN 1568: 2008 Parts 1-4
- > IMO MSC.1/Circ.1312

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

**\*Please note:** UL listed products are monitored by UL with manufacturers being required to send samples every 3 months for conformance testing. This ensures the foam being supplied is the same formulation as was originally tested - no other standard requires this monitoring.



**ABERDEEN FOAM INTERNATIONAL STANDARDS: C6 FOAMS**

C6 AFFF FLUORINATED FOAM CONCENTRATE	UL 162	ICAO Level B	EN 1568: 2018 Part 2	EN 1568: 2018 Part 3	EN 1568: 2018 Part 4	LAST FIRE	IMO MSC.1/ Circ. 1312
1% AFFF-LF	✓	✓		✓			✓
3% AFFF-LF-C6	✓	✓		✓			
6% AFFF-LF		✓		✓			
1% AFFF-C6	✓						
3% AFFF-C6	✓	✓		✓			
6% AFFF-C6		✓					
1x1% AR-AFFF-C6				✓	✓		✓
1x3% AR-AFFF-C6				✓	✓		
3x3% AR-AFFF-C6	✓					✓	

**ABERDEEN FOAM INTERNATIONAL STANDARDS: F3 FOAMS**

F3 FLUORINE FREE FOAM CONCENTRATE	UL 162	ICAO Level B	ICAO Level C	EN 1568: 2018 Part 1	EN 1568: 2018 Part 2	EN 1568: 2018 Part 3	EN 1568: 2018 Part 4	LAST FIRE	IMO MSC.1/ Circ. 1312
1% F3-LF						✓			
1% F3						✓			
3% F3						✓			
3% F3 AIRPORT FOAM		✓				✓			
3x3% AR-F3					✓	✓	✓		✓
JETFOAM 3 ICAO C*			✓						
JETFOAM 3 ICAO B*		✓				✓			
RESPONDOL ATF 3-3*	✓					✓	✓		✓
RESPONDOL ATF 3-6*						✓	✓		
FOREST & RURAL FIRE FOAM				✓	✓				
2% HI-EX				✓	✓				✓

\* Foam concentrates manufactured by Angus Fire. Oil Technics is the exclusive distributor for Scotland of Angus Fire Fire Fighting Foam Concentrates.

## FOAM TESTING LABORATORY SERVICES

**No matter where you are in the world, you can have your Foam Concentrate and Produced Foams tested by our leading, independent Foam Test Laboratory.**

Based in the UK and with over 30 years' experience serving the Firefighting Industry, we bring local services and expertise direct to your doorstep!

With ISO 9001:2015 accreditation, we offer full laboratory testing services for low, medium and high-expansion firefighting foams for:

- > Foam Concentrates
- > Produced Foams
- > PFAS content

## WHY FOAM CONCENTRATE TESTING IS NEEDED

High quality foam concentrates are very stable and suitable for long-term storage, with most reputable foam concentrate manufacturers offering at least a 10-year lifespan for products correctly stored in unopened containers. However, the performance of a firefighting foam concentrate can be compromised by:

- > Dilution
- > Contamination
- > Extremes of temperature
- > System failure

For these reasons, annual testing is essential and is in fact recommended by many international standards such as NFPA 11: 2021 and BS EN 13565-2: 2018.

**“** *At least annually, an inspection shall be made of foam concentrates... for evidence of excessive sludging or deterioration. Sample of concentrates shall be sent to the manufacturer or qualified laboratory for quality condition testing.* **”**

NFPA 11, 2021 Edition, 13.2.6.1 and 13.2.6.2

## WHY PRODUCED FOAM TESTING IS NEEDED

Although Foam proportioning systems are reliable and are subject to regular rigorous inspections and maintenance, testing your Produced Foam regularly helps ensure that your system is working properly and your foam is correctly proportioned.

**“** *At least annually, all foam systems shall be thoroughly inspected and tested for correct operation.”* **”**

NFPA 11, 2021 Edition, 13.2.1.1



## RECOMMENDATIONS FOR USING F3 FOAM

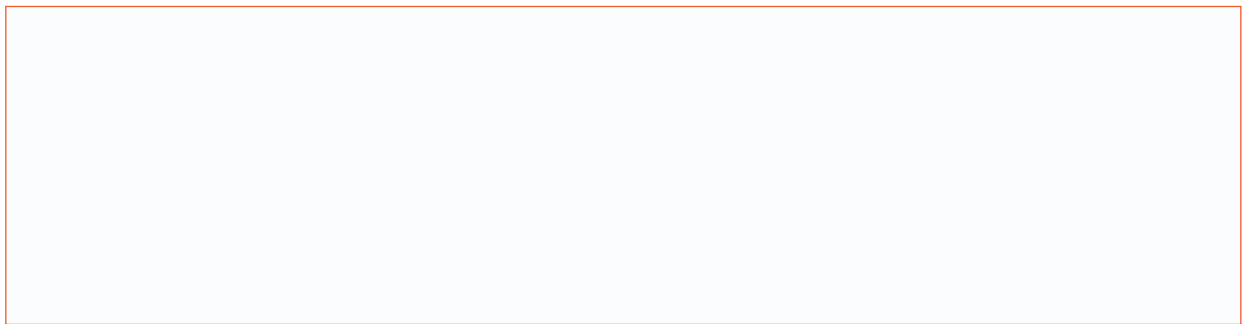
### It is recommended that:

- > F3 Foams of different types are not mixed before use.
- > F3 Foams should not be used when inducing with seawater (unless tested and approved to UL 162 and/or EN 1568: 2018 Part 3 standards)
- > F3 Foams should not be used as Low Freeze additives (unless tested and approved to UL 162 and/or EN 1568: 2018 Part 3 standards)





Your local distributor:



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

**Oil Technics (Fire Fighting Products) Ltd**

Linton Business Park, Gourdon, Aberdeenshire, Scotland UK DD10 0NH

**T:** +44 (0) 1561 361515 **E:** [info@firefightingfoam.com](mailto:info@firefightingfoam.com) **W:** [firefightingfoam.com](http://firefightingfoam.com)



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