3% ABERDEEN FOAM AFFF-C6

ABERDEEN FOAM

Aqueous Film-Forming Fire Fighting Foam

1 foam, 2 standards: Aberdeen Foam 3% AFFF-C6 Airport Foam is approved to ICAO Levels B & C.

Aberdeen Foam 3% AFFF-C6 Airport Foam extinguishes and secures Class B hydrocarbon fires of liquids such as crude oil, gasoline, aviation kerosene and fuel oil. Formulated for use with fresh water (ICAO requirement).

Not suitable for use on fuels which are polar solvents and water miscible such as alcohols, ketones, aldehydes and ethers.

HOW IT WORKS

Aberdeen Foam 3% AFFF-C6 Airport Foam effectively extinguishes and secures liquid hydrocarbon fires by the following actions:

Film forming – the foam forms an aqueous film across the surface of the fire to quickly cut off the oxygen supply and effectively knock down the flames.

Low surface tension – as the liquid drains from the foam, the surface tension reduces to ensure the foam floats on top of the surface of the liquid fuel.

Foam expansion – the foam cools the fuel's surface and creates a stable blanket to suppress the release of flammable vapours.

Resealing – if the blanket is broken by personnel or equipment, the foam quickly reseals to minimise the risk of re-ignition.

FIRE PERFORMANCE APPROVALS

Aberdeen Foam 3% AFFF-C6 Airport Foam concentrate has been tested and passes:

- ICAO Level C
- ICAO Level B

ICAO Level C

ICAO Level B

EPA 2015 COMPLIANT

EU 2017/1000 COMPLIANT

THE BACKGROUND TO C6 FIRE FIGHTING FOAMS

Over the last 15+ years, the Firefighting Foam Industry has been working to understand how environmental pollution arising from the use of non-C6 fluorinated AFFF concentrates can be removed.

Global concerns were raised in 2010 regarding toxic and environmentally persistent chemicals **perfluorooctanesulfonic acid** (PFOS) and **perfluorooctanoic acid** (PFOA) being formed by the breakdown of fluorosurfactants with a carbon chain length of C8 or greater. **Such fluorosurfactants are commonly used in the manufacture of firefighting foams.**

In the USA, the Environmental Protection Agency (EPA) established the **2010/15 PFOA Stewardship Programme**. The purpose of this programme was to eliminate the manufacture of any fluorosurfactant which has the possibility to breakdown into PFOA or PFOS, ie flurosurfactants with a carbon chain length of C8 or more, by the end of 2015.

For the firefighting foam industry, this meant that all AFFF manufacturers were required to reformulate their foam concentrates using C6 fluorosurfactants.

OUTCOMES

In 2017, the US EPA and the European Chemical Agency (ECHA) approved fire fighting foams manufactured with fluorosurfactants using a maximum carbon chain of C6.

> In the USA, C6 technology is now approved by the EPA and the military as the way forward for AFFFs.

> In the EU, ECHA has exempted C6 technology and allowed C6 AFFFs to be sold within the EU.

European Regulation EU 2017/1000 further requires that, by 2020, fluorosurfactant manufacturers reduce the amount of impurities in their C6 fluorosurfactants to:

> less than **25 parts per billion** for PFOA or its salts

> less than **1000 parts per billion** for a combination of PFOA-related substances.

We are pleased to announce that our range of Aberdeen Foam AFFF-C6 concentrates already meet this regulation - and contain considerably fewer than the maximum quantities allowable under this regulation - three years before it comes into force!

> For further information, please contact Oil Technics Ltd.

3% AFFF-C6 AIRPORT FOAM

PHYSICAL PROPERTIES

Appearance	Off white liquid
Specific gravity	1.02
pH at 20°C	7 - 8
Viscosity @ 20°C	Non viscous
Surface tension @ 20°C N/m	0.02 @ 3% WS
Freezing point (°C)	-9
Lowest use temp. (°C)	0
Expansion*	8.13
25% drainage (minutes)	4 min. 9 sec.
Max. storage temp. (°C)	49
Min. storage temp. (°C)	-5
BOD_{20}/COD**	77.2%
Freeze/thaw effect	None

* Foam quality will depend on the foam equipment used and the operating conditions. The above are tested in accordance with UK Defence Standard 42-40.

**US MIL-SPEC requirement is >65%

FOAMING PROPERTIES

Foam expansion properties will vary depending on several factors including:

- Using salt or fresh water
- Water hardness
- Equipment characteristics
- Equipment flow rate

For example, aspirating devices will produce typical expansion ratios of between 6:1 and 10:1 and non-aspirating devices between 2:1 and 4:1.
Always check your equipment's operation manual for guidance.

ENVIRONMENTAL IMPACT

- Contain no fluorosurfactants of chain length greater than C6
- Biodegradable: BOD_{20}/COD ratio of 77.2%
- Butyl carbitol free
- Low toxicity to aquatic organisms

APPLICATIONS

Aberdeen Foam 3% AFFF-C6 Airport Foam concentrate has been specially formulated for use in airports. It is also suitable for use wherever hydrocarbons present a fire risk.

Produced AFFF foams can also be used as wetting agents for combating Class A fires (i.e.tyres, paper, wood) and for providing a vapour suppression blanket on hydrocarbon spills.

DISCHARGE EQUIPMENT

Aberdeen Foam 3% AFFF-C6 Airport Foam concentrate is suitable for use with:

- Foam chambers
- Aspirating and non-aspirating sprinklers or spray nozzles
- Water fog nozzles for handlines and monitors
- Foam makers for use with either Floating Roof or Bund Protection systems

ICAO TEST REQUIREMENTS

Foam application rates for ICAO Test Standards:

- Level B: 2.5L/min/m^2
- Level C: 1.75L/min/m^2

PROPORTIONING INFORMATION

- 3 parts foam concentrate to 97 parts water

STORAGE AND SHELF LIFE

Best stored as supplied in original, unopened containers. Suitable for storage in containers and tanks manufactured from:

- Stainless steel (Type 304L or 316L)
- High density cross-linked polyethylene
- FRP – vinyl ester epoxy resin only

If kept in the original manufacturer's supplied container and stored between -5°C and 49°C, a shelf life of at least 10 years can be expected.

To prolong the shelf life of any AFFF, do not expose to temperature extremes and prevent contamination from foreign materials.

COMPATIBILITY

Our laboratory tests have shown Aberdeen Foam 3% AFFF-C6 Airport Foam concentrate is compatible in all proportions with other high quality aqueous film-forming foams and ABC and BC firefighting powders.

However, in order to maintain EPA 2010/15 compliancy, it is recommended that **C6 foams are not mixed with any other foams.**

As recommended by NFPA 11, we would advise that if mixing foam concentrates from different manufacturers a compatibility study is carried out beforehand.

Different types of foam concentrates - for example AFFF and Protein Foams - should never be mixed.

For further information or advice on compatibility testing, please contact Oil Technics Limited.

DISPOSAL

Produced Aberdeen Foam 3% AFFF-C6 Airport Foam can be safely disposed of in biological waste water treatment systems.

INSPECTION AND TESTING

As recommended by NFPA11: 2016 and BS EN 13565-2:2009, all foam concentrates should be inspected and tested at least annually as part of your fire fighting foam maintenance programme.

Oil Technics Limited offers a worldwide foam testing service and inhouse foam testing training. For further details, please contact us or visit our website: www.foamtesting.com

TECHNICAL SERVICES AND SALES SUPPORT

For our UK customers, Aberdeen Foam is available 24/7 via our 24 hour emergency call out service: +44 (0) 1561 361515

Aberdeen Foam is manufactured in Scotland under ISO 9001: 2015 and ISO 14001: 2015 accredited management systems and audited by UL every four months.

PACK SPECIFICATIONS

Aberdeen Foam concentrates are available in the following sizes:

Capacity	20L	25L	200L	1000L	Bulk tank
Dimensions (cm)	40 x 29.5 x 24.5	47 x 29.5 x 24.5	92 x 58 x 58	102 x 100 x 116	TBC
Empty weight (kg)	0.8	0.9	8	60	TBC
Filled weight (kg)	22.2	27.6	222	1130	TBC

These measurements are for reference purposes only and are intended as guidelines only. Oil Technics Ltd reserve the right to modify any specification at any time and without prior notice.

ABERDEEN FOAM
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