

Description

Fomtec AFFF 3% is an aqueous film forming foam concentrate (AFFF) consisting of fluorocarbon and hydrocarbon surfactants blended with various solvents, preservatives and stabilisers.

The foam forms an aqueous film that rapidly cuts off the oxygen supply and thus knocks down the fire. The expanded foam from which the film is drained forms a stable blanket that suppresses the release of flammable vapours and cools down the fuel surface extinguishing the fire and preventing re-ignition.

The low surface tension of the water foam concentrate solution enables the aqueous film, although heavier than the burning liquid, to float on top of the liquid surface.

Fomtec AFFF 3% should be used at 3% proportioned solution (3 part concentrate in 97 parts of water) in fresh or seawater. It may also be stored as a pre mix solution in fresh water.

Application

Fomtec AFFF 3% is intended for use on class B hydrocarbon fuel fires such as oil, diesel and aviation fuels. It can be used with both aspirating and non-aspirating discharge devices.

Fomtec AFFF 3% is especially suited whenever rapid fire knock-down is essential. It is compatible with all dry chemical powders and can be used in powder/foam twin agent systems.

Fire Performance & Foaming

The fire performance of Fomtec AFFF 3% has been tested and documented according to the UK Ministry Of Defence Standard 42/40 and EN 1568 Part 3 at 3% proportioning. Foaming index no less than 7:1 (normally 8:1). 25% drainage time 3.0 minutes (normally 3.5).

Proportioning

Fomtec AFFF 3% can easily be proportioned at the correct dilution using conventional equipment such as:

- Inline inductors.
- Balanced pressure, variable flow proportioning systems.
- Bladder tanks.
- Around the pump proportioning systems.
- Water turbine driven foam proportioners.
- Self inducing branch pipes and nozzles.

Technical data

Appearance	Clear Amber Liquid
Specific gravity @ 20°C	1.015 +/- 0.01 g/ml
Viscosity approx @ 20°C	< 20 cSt
pH	7.5 +/- 1.0
Freezing point	- 5°C
Pour point	- 4°C
Suspended sediment (v/v)	Less than 0.2%
Surface tension approx	20.0 dynes/cm

Storage/Shelf Life

Stored in original unbroken packaging the product will have a long shelf life. The recommended storage temperature range of Fomtec AFFF 3% is from -4°C to 55°C. Freezing and thawing will have no impact on the performance.

Synthetic foam concentrates should only be stored in stainless steel or plastic containers. Since electromagnetic corrosion can occur at joints between different metals when they are in contact with foam concentrate, only one type of metal should be used for pipelines, fittings, pumps, and tanks employed in the storage of foam concentrates.

Packaging

We supply Fomtec in 25 litre cans and 200 litre drums. We can also ship in 1000 litre containers or in bulk.

International Approvals

Fulfills the requirements of the following standard:

- EN 1568, part 3



Test Report - Fire Extinguishing Media to EN 1568-3:2008 Specification

Office: **Helsingborg**

Date: **03 December 2009**

This certificate is issued to **Dafo Fomtec AB, Helsingborg, Sweden**

to certify that at their request the undersigned Surveyor to this society did attend their premises at Garnisonsgatan 47A and subsequently the test site of Brandorama at Helsingborg for the purpose of selecting samples of **FOMTEC AFFF 3%** to confirm that the properties were within the technical specifications and were in accordance with EN 1568-3: 2008(E).

The necessary tests were witnessed and the results obtained were all within the limits given in the manufacturer's specification, and the requirements of EN 1568-3:2008(E).

Report:

Tolerance to Freezing and thawing (Annex E)

No stratification or non-homogeneity could be detected in the sample;

Sediment (Annex C)

Before ageing of the sample = <0.1%
 After ageing of the sample = <0.1%
 (24 hours at 60 °C)

Viscosity at 20 °C = 3 mPa.s

pH of the concentrate at 20 °C = 7.80

Surface Tension, Interfacial Tension and spreading coefficient (Annex F)

	<u>Surface Tension</u> Dynes/cm	<u>Interfacial Tension</u> Dynes/cm	<u>Spreading Coefficient</u> Dynes/cm
Before Conditioning	18.2	1.8	5.6
After Conditioning	18.2	1.6	5.2
Top Sample			
Bottom Sample	18.1	1.3	5.6
at -30 °C for 24 hrs			
followed by 48 hrs at 20 °C			
and at 60 °C for 7 days			
followed by 2 days at 20 °C			

Expansion and Drainage (Annex G)

	Fresh water		Sea water	
Before Conditioning of the sample				
Expansion	7.45		8.15	
25% drainage time	2' 15"		2' 28"	
50% drainage time	4' 10"		4' 42"	
After Conditioning of the sample				
In accordance with Annex E	Fresh Water		Sea Water	
	Top	Bottom	Top	Bottom
Expansion	7.56	7.62	8.03	8.07
25% drainage time	2' 40"	2' 28"	2' 50"	2' 54"
50% drainage time	4' 36"	4' 52"	5' 00"	5' 00"

Fire Tests (Annex H)

Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

A) Forceful application in accordance with EN 1568-3

Fire Tests carried out in accordance with Annex H1 and H3 using:-

Fresh water and Sea water	
Pre burn time	60 seconds
Foam application	180 seconds
Wait after foam application	300 seconds
Fire tray	144B (4.5 m ²)
Fuel	Commercial Heptane on water bed
Air Temperature (°C)	11 °C
Water Temperature (°C)	17 °C
Fuel Temperature (°C)	17 °C
Foam Temperature (°C)	17 °C
Wind speed (m/sec.)	< 0.5

	<u>Fresh water</u>	<u>Sea water</u>	<u>Fresh water</u>
90% Control	0' 55"	0' 45"	0' 53"
99% Control	1' 15"	1' 01"	1' 14"
100% Extinction	1' 36"	1' 33"	1' 43"
25% Burnback time	N/A	N/A	N/A

B) Gentle application in accordance with EN 1568-3

Fire Tests carried out in accordance with Annex H1 and H2 using:-

Fresh water and Sea water	
Pre burn time	60 seconds
Foam application	300 seconds
Wait after foam application	300 seconds
Fire tray	144B (4.5 m ²)
Fuel	Commercial Heptane on water bed
Air Temperature (°C)	11 °C
Water Temperature (°C)	17 °C
Fuel Temperature (°C)	17 °C
Foam Temperature (°C)	17 °C
Wind speed (m/sec.)	< 0.5

	<u>Fresh water</u>	<u>Sea water</u>	<u>Fresh water</u>
90% Control	0' 56"	1' 01"	1' 12"
99% Control	1' 23"	1' 13"	2' 35"
100% Extinction	1' 50"	1' 40"	3' 12"
25% Burnback time	16' 01"	16' 10"	16' 40"

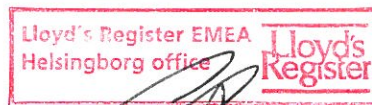
From the above test results it is confirmed that FOMTEC AFFF 3% is a film forming foam concentrate suitable for use at 3% concentration with potable water and sea water.

Fomtec AFFF 3% has tolerance to freezing and thawing (annex E). The product is suitable for storage above -30 °C. The fire extinguishing performance is Class I and the burnback level is B using potable water and sea water.

Performance level achieved:

Extinguishment Class I
 Burnback resistance level B.

Client: Dafo Fomtec AB
Helsingborg, Sweden



Peter Andersson for Gerhard A Kucer
 Surveyor to Lloyd's Register EMEA

A member of the Lloyd's Register Group

Material Safety Data sheet

According to 1907/2006/EG annex II (REACH-regulation)

Latest Revision: 01/11/2008

MSDS No :

Fomtec AFFF 3%

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of the substance or preparation : AFFF 3%

Use of the substance/preparation : Fire Extinguishing Foam Concentrate

Company/Undertaking identification : Dafo Fomtec AB, P.O. Box 683, SE – 135 26 Tyreso, Sweden
Tel: +46 8 506 405 66
Fax: +46 8 506 405 29

Emergency telephone :

2. HAZARD IDENTIFICATION

- Irritating to eyes

3. COMPOSITION/INFORMATION ON INGREDIENTS

No	Name of Ingredient	CAS-No	EINECS-No	Cons.Weight%	Health class
1	Water	7732-18-5	231-791-2	Balance	
2	2-(2-butoxyetoksy)etanol	112-34-5	203-961-6	5-10	Xi R36
3	Hydrocarbon surfactants	-	-	1-12	Xi, R36/38
4	Fluorosurfactants	-	-	<5	Xi R,36/38

4. FIRST AID MEASURES

- Eye contact : Rinse thoroughly with running water at least for ten minutes. Seek medical advice if symptoms persists.
- Skin contact : Remove contaminated clothing etc and wash skin thoroughly with water. Seek medical advice if irritation persists.
- Ingestion : Rinse mouth with water. Give lots of water to drink. Do not induce vomiting. Seek medical advice if you are unwell.
- Inhalation : Remove the casualty into fresh air. Seek medical advice if symptoms Persists.

5. FIRE FIGHTING MEASURES

- No specific measures are required as the product itself is a fire fighting agent. If product containers are involved in fire, then a suitable extinguishing agent should be used.
- Evacuate all personnel, use protective clothing use breathing apparatus if required.
- Stop release of product to fire, Keep away from heat, use water to cool tanks. Move tanks from fire area if possible with out risk. Fire to be fought from safe distance. Poisonous decomposition products may be created during a fire.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Avoid eye and skin contact. Supply fresh air in enclosed spaces. See heading 8 of this MSDS.
- Environmental precautions : Seal off the spill area with absorbing materials to avoid spreading of release to water or water treatment systems.
- Method for cleaning up : Shovel up the absorbed material and place in a labeled, sealed container for subsequent disposal.. The practice of washing in to drains should be avoided.

7. HANDLING AND STORAGE

- Handling : The product should be diluted before use. Avoid skin and eye contact. Use personal protective equipment according to section 8. Avoid spill around the containers, the

Material Safety Data sheet

According to 1907/2006/EG annex II (REACH-regulation)

Latest Revision: 01/11/2008

MSDS No :

Fomtec AFFF 3%

Storage : material may be slippery.
: Product should be stored in sealed, original containers. Freezing and thawing do not effect the properties but care must be taken to avoid freezing of the container and its contents since the expansion of the container contents may cause cracking of the completely rigid container as ice forms. Do not store above +50C for longer periods.
Must comply to the national regulations for products classified as water hazard class 1.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational Exposure limit values:

2-(2-butoxyethoxy) ethanol CAS No: 112-34-5

WEL-LTEL / EC 67.5 mg/cu.m.

WEL-STEL / EC-STEL 101.2 mg/cu.m.

Propane-1,2-diol CAS No: 57-55-6

WEL-LTEL 10 mg/cu.m. Particulates, 470 mg/cu.m. Total 8hr TWA

Exposure Controls: : Work under local ventilation

Hand protection : Suitable gloves made from nitrile or butyl rubber

Eye protection : Use safety goggles

Skin protection : Use protective clothings such as overalls

Respiratory protection : Gas mask with filter type A may be used if concentration in air > exposure limit

Environmental exposure control : Store or dispose concentrate in accordance with national regulations

9. PHYSICAL AND CHEMICAL PROPERTIES

Type of material:	Liquid
Colour:	Clear pale yellow
Odour:	Organic odour
Solubility:	Miscible with water in all proportions
Freeze point:	- 4 C
Specific gravity at 20 C	1.00 – 1.03
pH	6.5 – 8.5
Boiling point	100 C at 760mm Hg
Flash point:	>98 C
Flammability	Not flammable
Oxidising properties	None
Explosive properties	Product has no explosive property

10. STABILITY AND REACTIVITY

Material to avoid : Keep away from heat sources. Avoid strong oxidisers.

Conditions to avoid : Stable under normal conditions

Hazardous decomposition products : Thermal decomposition of containers and/or products may generate acrid smoke, fumes, carbon monoxide, carbon dioxide (Oxygen depleting), traces of nitrogen oxide and Sox.

11. TOXICOLOGICAL INFORMATION

Material Safety Data sheet

According to 1907/2006/EG annex II (REACH-regulation)

Latest Revision: 01/11/2008

MSDS No :

Fomtec AFFF 3%

Acute toxicity:

2-(2-butoxyethoxy) ethanol

LD50 oral rat 5660 mg/Kg

LD50 dermal rabbit 2700 mg/Kg

Acute effects:

Skin contact : Classified as non-irritant according to the dangerous preparation directive 1999/45/EU

Eye contact : Can cause redness or irritation of the eye tissue

12. ECOLOGICAL INFORMATION

Ecotoxicity

Data has been deduced from a similar product

Rainbow Trout	LC50 (96 hours)	3%	>2000mg/l
Daphnia Magna	EC50 (24 hours)		>1000mg/l

Persistence and degradability

The product is biodegradable

BOD (5 days) 310000mg/l

COD 369000mg/l

Biodegradation 84.01%

BIOACCUMULATION

Not expected to bioaccumulate due to metabolism and excretion.

13. DISPOSAL CONSIDERATIONS

Waste should be disposed via local authority waste collection service or registered waste carrier ensuring that the destination is a licensed facility. All packaging shall be emptied and removed according to regulations, or be re circulated without removal of labeling. Do not dispose with house hold garbage.

European Waste Code : 16 Wastes not otherwise specified in the list
1603 Off-specification batches and unused products
160306 Organic wastes other than those mentioned in 160305

14. TRANSPORT INFORMATION

Not classified as Dangerous or hazardous for transport under:

ADR (Transport by road)

RID (Transport by rail)

ADNR (Transport by inland waterways)

IMDG (Maritime Transport)

ICAO (Transport by air)

Not restricted for any mode of international transport

15. REGULATORY INFORMATION

Classification according to European directive 67/548/EEC and 1999/45/EC

Label For Supply : Not required

Material Safety Data sheet

According to 1907/2006/EG annex II (REACH-regulation)

Latest Revision: 01/11/2008

MSDS No :

Fomtec AFFF 3%

Risk Phrases: R36 / R38 Irritating to eyes and skin

REFERENCES

Health and Safety at work Act 1974

Chemicals (Hazard Information & Packaging for supply) Regulations 1994 / Amendment 1996

EC Directives: Substance Directive 67/548/EEC as amended by 69/81/EEC, 75/409/EEC, 79/831/EEC General Preparations Directive 88/379/EEC. 1999/45/EC, 2001/58/EC

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Transport of Dangerous Goods: ADR,RID,IMDG and IATA

Guidance Notes: Occupational Exposure Limits EH40/96

Note: EH40 is revised on an annual basis and latest issue should therefore be applied

16. OTHER INFORMATION

RELEASED: 01/11/2008

INFORMATION SOURCES

Datasheet from the suppliers

Work protection agency information pamphlet about protective equipment

Work protection agency information pamphlet about gloves

“What you Need to know when you use protective breathing equipment” (Information, order number.: 539, Work protection agency)

Sax,N.I. and R.J. Lewis,Sr: Dangerous Properties of Industrial Materials, Seventh Edition, Volumes 1 to 3 (1991).

DISCLAIMER: This information is based on our current knowledge and is intended to describe the product for the purpose of health, safety and environmental requirements. The product should not be used for purposes other than fire fighting. The user is responsible for ensuring that requirements of relevant legislation are complied with.
