

Description

Fomtec ARC 3x3 S is an ultra high efficiency multi purpose film forming foam (3x3).

Fomtec ARC 3x3 S shall be used at 3% induction ratio on both hydrocarbon and polar solvents fires using fresh, brackish or seawater.

The film forming characteristics of Fomtec ARC 3x3 S means that it spreads rapidly across a fire. As a result, it is highly effective against hydrocarbon fires and with the addition of special polymers it is also highly effective against polar solvents

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 hydrocarbon liquid surface.

When applied on polar solvents a polymeric membrane makes it possible for the foam blanket to extinguish effectively. This works on foam destroying liquids such as pure MTBE or Gasoline mixed with MTBE

Fomtec ARC 3x3 S should be used at 3% proportioned solution.

Application

Fomtec ARC 3x3 S is intended for use on class B hydrocarbon fuel as well as on polar solvent i.e Isopropanol, Methanol etc and other foam destroying product fires such as MTBE. It can be used with both aspirating and non-aspirating discharge devices. It is compatible with all dry chemical powders.

Sprinkler Applications

Fomtec ARC 3x3 S has been tested according to the Underwriters Laboratories Standard UL 162 using standard sprinkler heads K 80 and K115. Sprinkler applications are especially challenging for any foam due to the very low operating pressure and the very low expansion reached. Applying foam through a sprinkler head is a very forceful application method and require a foam that can handle direct application and partial submersion into the fuel without losing its fire performance and burnback resistance. Foams that shall be regarded as suitable for Sprinkler

applications shall also be able to withstand limited time of water deluge directly onto the foam blanket without losing its burnback properties. This test is performed on the foam during the Heptane test. Fomtec AFFF 3x3 S has passed these tests showing very good extinguishing and burnback properties.

The fire performance of Fomtec ARC 3x3 S has been tested according to UL 162 7th edition using type II and type III discharge outlets.

The Fomtec AFFF 3x3 S is ideal for all High risk applications where any type of discharge outlet may be in use such as:

- Petrochemical and chemical plants
- Offshore installations
- Oil and Chemical tankers
- Tank Farms
- Warehouses

Fire Performance & Foaming

The fire performance of Fomtec AFFF 3% S has been tested and documented according to Lastfire, UK Ministry Of Defence Standard 42/40 and Underwriters Laboratories Standard UL 162 – 7th Edition as well as Factory Mutual (FM) 5130

Foaming index no less than 7:1 (normally 8:1). 25% drainage time 3.0 minutes (normally 3.5).

Proportioning

Fomtec ARC 3x3 S 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.

The equipment should be designed to the foam type.

Technical data

Appearance	Clear yellow Liquid
Specific gravity @ 15.6°C	1.06 +/- 0.01 g/ml
Brookfield Viscosity approx @ 20°C	1700 mPa.s
pH	7.5 +/- 1.0
Undissolved solids (v/v)	Less than 0.2 %
UL listed storage temperature	-6.7 °C
Surface tension approx	17.5 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 ARC 3x3 S is from -6.7°C to 49°C. Shelf life in excess of 10 years will be found in temperate climates. As with all foams, shelf life will be dependent on storage temperatures and conditions. If the product is frozen during storage or transport, thawing will render the product completely usable.

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.

Environment:

Fomtec AFFF 3x3 S is formulated using specially selected raw materials, selected for their fire performance and their environmental profile. Fomtec AFFF 3x3 S is biodegradable. The handling of spill of concentrate or foam solutions shall however be made according to local regulations. Normally sewage systems will have no problem with a 3% foam solution based on Fomtec AFFF 3x3 S, but local sewage operators should be consulted in this respect.

Full details will be found in the Material Safety Datasheet(MSDS)

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:

- Underwriters Laboratories, UL 162 7th edition
- Factory Mutual (FM) 5130



GFGV.EX6015 Foam Liquid Concentrates

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Foam Liquid Concentrates

[See General Information for Foam Liquid Concentrates](#)

DAFO FOMTEC AB

EX6015

PO BOX 683
SE-135 26 TYRESO, SWEDEN

Fomtec FP 3% UL, nominal 3 percent, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec FP 6% UL, nominal 6 percent, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec ARC 3X3UL, nominal 3 percent Alcohol resistant Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbons and polar fuels only at 3 percent.

Fomtec AFFF 3% S, nominal 3 percent Aqueous Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec ARC 3X3 S, nominal 3 percent Alcohol resistant Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbons and polar fuels only at 3 percent.

Fomtec AFFF 1% ULTRA LT, nominal 1 percent Aqueous Film Forming Foam, +0°F (-18 °C) minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec AFFF 3% ULTRA LT, nominal 3 percent Aqueous Film Forming Foam, +0°F (-18 °C) minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec AFFF 6% ULTRA LT, nominal 6 percent Aqueous Film Forming Foam, +0°F (-18 °C) minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec AFFF 3% ULTRA, nominal 3 percent Aqueous Film Forming Foam, +35°F minimum storage and use temperature. Hydrocarbon fuels only.

Fomtec AFFF 6% ULTRA, nominal 6 percent Aqueous Film Forming Foam, +35°F minimum storage and use temperature. Hydrocarbon fuels only.

Foam concentrates for use with the following equipment:

Fomtec FP 3% UL, 3 percent

PROPORTIONERS-PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-90, 1-1/2 in. size with 50 ft of 1-1/2 in. hose between inductor and National Foam Inc., Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
National Foam Inc.	1-1/2	58
Model JS-10, -10B		

Fomtec FP 6% UL, 6 percent

PROPORTIONERS-PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-90, 1-1/2 in. size with 50 ft of 1-1/2 in. hose between inductor and National Foam Inc., Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
National Foam Inc.	1-1/2	58
Model JS-10, -10B		

Fomtec ARC 3X3UL, 3 percent

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

National Foam Inc., Model HLP-9M, 1-1/2 in. size, set at 3 inlet pressure 200 psi with 50 ft of 1 1/2 in. hose between inductor and National Foam, Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
National Foam Inc., Model JS-10	1-1/2	94

PROPORTIONERS - BLADDER TANKS WITH CONTROLLERS

Chemguard Inc. bladder tanks with the following controllers:

Description	Controller Size, in.	Orifice Size, in.	Flow, gpm	Percent Proportioning
Chemguard Inc.	4	0.455	405	3

FIXED FOAM DISCHARGE OUTLETS

Description	Fuel	Orifice Diameter, in.	Inlet Pressure, psi
Chemguard Inc., Model FC 4.0	Alc	1.485	100

Where:

Fuel	Minimum Application Rate, gpm/ft ²
Alc (Alcohols)	0.14

FOMTEC AFFF 3% S, 3%

PROPORTIONERS - FIXED IN-LINE INDUCTORS

Description	Size In.	Orifice Diam In.	Inlet Pressure psi	Back Pressure psi
Viking Model, FE 90 P/N 09178	1-1/2	0.208(5.28 mm)	145	73

SPRINKLERS

Fuel	Style	Min Application Rate GPM/Sq Ft	Min Inlet Pressure psi
Viking Corp, SIN VK100, K-Factor 5.6 (1/2 in.)			
Hydrocarbons	Upright	0.16	7.0
Viking Corp, SIN VK102, K-Factor 5.6 (1/2 in.)			
Hydrocarbons	Pendant	0.16	7.0
Viking Corp, SIN VK200, K-Factor 8.0 (17/32 in.)			
Hydrocarbons	Upright	0.22	7.0
Viking Corp, SIN VK202, K-Factor 8.0 (17/32 in.)			
Hydrocarbons	Pendant	0.22	7.0

FOMTEC ARC 3x3 S, 3%

PROPORTIONERS - FIXED IN-LINE INDUCTORS

Description	Size In.	Orifice Diam In.	Inlet Pressure psi	Back Pressure psi

Viking Model, FE 90 P/N F09176	1-1/2	0.245(6.22 mm)	200	80
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SPRINKLERS

Fuel	Style	Min Application Rate GPM/Sq Ft	Min Inlet Pressure psi
Viking Corp, SIN VK100, K-Factor 5.6 (1/2 in.)			
Hydrocarbons	Upright	0.16	7.0
Alcohols	Upright	0.22	14.5
Ketones	Upright	0.29	24.0
Viking Corp, SIN VK102, K-Factor 5.6 (1/2 in.)			
Hydrocarbons	Pendant	0.16	7.0
Alcohols	Pendant	0.26	19.0
Ketones	Pendant	0.29	24.0
Viking Corp, SIN VK200, K-Factor 8.0 (17/32 in.)			
Hydrocarbons	Upright	0.22	7.0
Alcohols	Upright	0.29	12.0
Ketones	Upright	0.32	15.0
Viking Corp, SIN VK202, K-Factor 8.0 (17/32 in.)			
Hydrocarbons	Pendant	0.22	7.0
Alcohols	Pendant	0.29	12.0
Ketones	Pendant	0.32	15.0

FOMTEC AFFF 1% ULTRA LT, 1 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-90, 1-1/2 in. size, with 0.098" orifice, with 100 ft of 1-1/2 in. hose between inductor and National Foam Inc., Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
National Foam Inc., Model JS-10	1-1/2	50

FOMTEC AFFF 3% ULTRA LT, 3 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-90, 1-1/2 in. size, with 0.207" orifice, with 100 ft of 1-1/2 in. hose between inductor and National Foam Inc., Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
National Foam Inc., Model JS-10	1-1/2	50

FOMTEC AFFF 6% ULTRA LT, 6 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-90, 1-1/2 in. size, with 0.310" orifice, with 100 ft of 1-1/2 in. hose between inductor and National Foam Inc., Model JS-10 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi

National Foam Inc., Model JS-10	1-1/2	50
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FOMTEC AFFF 3% ULTRA, 3 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-60, 1-1/2 in. size, set at 3%, with 20 m of 42 mm. nominal size hose between inductor Viking Corp., Model A-60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Viking Corp., Model A-60	1-1/2	65.3

FOMTEC AFFF 6% ULTRA, 6 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Viking Corp., Model FE-60, 1-1/2 in. size, set at 6%, with 20 m of 42 mm. nominal size hose between inductor Viking Corp., Model A-60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Viking Corp., Model A-60	1-1/2	50.8

Last Updated on 2010-12-14

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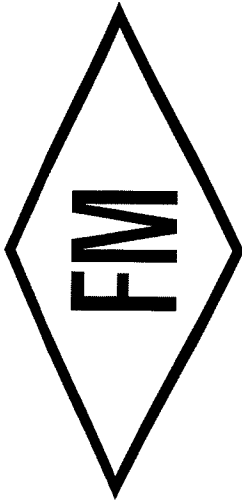
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APPROVED

Foam Fire Extinguishing Systems

This certificate is issued for the following equipment:

**Fomtec AFFF 3% S and Fomtec ARC 3X3 S
Foam Concentrates**

with

**Viking VK100, VK102, VK200, & VK202
Foam Water Sprinklers**

Manufactured by:

**Dafo Fomtec AB
PO Box 683
SE-13526 Tyreso
Sweden**

FM Approvals confirms that the items have been found to comply with the following standard:

FM Approvals Standard 5130, April 2007

Project Identifier: 3030040

Date of Approval: 01 April 2009

Richard Dunne, Group Manager
FM Approvals – Hydraulics Group

April 1, 2009
Date



Member of the FM Global Group

Material Safety Data sheet

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

Latest Revision: 01/11/2008

MSDS No :

Fomtec ARC 3X3 S

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

Identification of the substance or preparation : ARC 3X3 S

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% ARC 3X3 S	Health class
1	Water	7732-18-5	231-791-2	Balance	
2	2-(2-butoksyetoksy)etanol	112-34-5	203-961-6	1-12	Xi R36
3	Hydrocarbon surfactants	-	-	1-8	Xi, R36/38
4	Fluorosurfactants	-	-	<5	Xi R,36/38
5	Polyethylene glycol	25322-68-3	500-038-2	1-5	
6	Polymer	11138-66-2	234-394-2	<5	

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.

Material Safety Data sheet

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

Latest Revision: 01/11/2008

MSDS No :

Fomtec ARC 3X3 S

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 may be slippery.

Storage : 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.

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:	Pseudoplastic, liquid
Colour:	Clear pale yellow
Odour:	Organic odour
Solubility:	Miscible with water in all proportions
Freeze point:	-10 C
Specific gravity at 20 C	1.02 – 1.04
pH	6.5 – 8.5
Viscosity Brookfield	2400 m.Pa.s
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.

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Latest Revision: 01/11/2008

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11. TOXICOLOGICAL INFORMATION

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) 23000mg/l

COD 41450mg/l

Biodegradation 55.49%

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

Material Safety Data sheet

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

Latest Revision: 01/11/2008

MSDS No :

Fomtec ARC 3X3 S

15. REGULATORY INFORMATION

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

Label For Supply : None required

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.