

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form : Mixture
Product name : JetFoam 6%
Product code : FC 05 09
Type of product : Firefighting foam concentrate (Fluorine Free)

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Firefighting foam concentrate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ANGUS FIRE Ltd
Station Road
LA2 7NA Bentham - United Kingdom
T +44(0) 1524 264000 - F +44(0)1524 264180
general.enquiries@angus.co.uk - www.angusfire.co.uk

1.4. Emergency telephone number

Emergency number : +44(0) 1524 264000 (Standard office hours: Monday to Friday 8:30am - 4:30pm GMT)
Contact person: EH&S Manager

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Serious eye damage/eye irritation, Category 2 H319

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) : Warning
Hazard statements (CLP) : H319 - Causes serious eye irritation.
Precautionary statements (CLP) : P264 - Wash hands thoroughly after handling.
P280 - Wear eye protection, protective clothing, protective gloves
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

PBT: not relevant – no registration required

vPvB: not relevant – no registration required

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SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2-(2-butoxyethoxy)ethanol	(CAS-No.) 112-34-5 (EC-No.) 203-961-6 (EC Index-No.) 603-096-00-8 (REACH-no) 01-2119475104-44	4 - 10	Eye Irrit. 2, H319
Amphoteric surfactant blend	(CAS-No.) Proprietary	1 - 4	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Morpholine substance with a Community workplace exposure limit substance with national workplace exposure limit(s) (BE, FR, GB, NL)	(CAS-No.) 110-91-8 (EC-No.) 203-815-1 (EC Index-No.) 613-028-00-9 (REACH-no) 01-2119496057-30	< 0.05	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1B, H314

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.
- First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects after eye contact : Causes serious eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : No specific measures are necessary. This product is a fire extinguishing medium.
- Unsuitable extinguishing media : Not applicable.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : No fire hazard.

5.3. Advice for firefighters

- Firefighting instructions : Not applicable.
- Protection during firefighting : Not applicable.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

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6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

8. Exposure controls/personal protection. 13. Disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Wear recommended personal protective equipment. Read and follow manufacturer's recommendations. Handle in accordance with good industrial hygiene and safety procedures. Read and follow the Safety Data Sheet (SDS) before use.

Hygiene measures : Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in original container. Keep container tightly closed. Store at temperatures not exceeding 60°C (140°F) (intermittent). Protect from sunlight. Protect from freezing. Keep/Store away from incompatible materials.

7.3. Specific end use(s)

Firefighting foam concentrate.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2-(2-butoxyethoxy)ethanol (112-34-5)		
EU	IOELV TWA (mg/m ³)	67.5 mg/m ³
EU	IOELV TWA (ppm)	10 ppm
EU	IOELV STEL (mg/m ³)	101.2 mg/m ³
EU	IOELV STEL (ppm)	15 ppm
Belgium	Limit value (mg/m ³)	67.5 mg/m ³
Belgium	Limit value (ppm)	10 ppm
Belgium	Short time value (mg/m ³)	101.2 mg/m ³
Belgium	Short time value (ppm)	15 ppm
France	VME (mg/m ³)	67.5 mg/m ³
France	VME (ppm)	10 ppm
France	VLE (mg/m ³)	101.2 mg/m ³
France	VLE (ppm)	15 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	50 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	7.4 ppm
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	100 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (ppm)	15 ppm
United Kingdom	WEL TWA (mg/m ³)	67.5 mg/m ³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	WEL STEL (mg/m ³)	101.2 mg/m ³
United Kingdom	WEL STEL (ppm)	15 ppm
USA - ACGIH	ACGIH TWA (ppm)	10 ppm (Inhalable fraction and vapor)
Morpholine (110-91-8)		
EU	IOELV TWA (mg/m ³)	36 mg/m ³
EU	IOELV TWA (ppm)	10 ppm
EU	IOELV STEL (mg/m ³)	72 mg/m ³
EU	IOELV STEL (ppm)	20 ppm
Belgium	Limit value (mg/m ³)	36 mg/m ³
Belgium	Limit value (ppm)	10 ppm
Belgium	Short time value (mg/m ³)	72 mg/m ³
Belgium	Short time value (ppm)	20 ppm
France	VME (mg/m ³)	36 mg/m ³
France	VME (ppm)	10 ppm
France	VLE (mg/m ³)	72 mg/m ³
France	VLE (ppm)	20 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	36 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	9.9 ppm
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	72 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (ppm)	20 ppm

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Morpholine (110-91-8)		
United Kingdom	WEL TWA (mg/m ³)	36 mg/m ³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	WEL STEL (mg/m ³)	72 mg/m ³
United Kingdom	WEL STEL (ppm)	20 ppm
USA - ACGIH	ACGIH TWA (ppm)	20 ppm

8.2. Exposure controls

Appropriate engineering controls:

Ensure adequate ventilation. Follow the exposure limits given on this material safety data sheet.

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Wear protective gloves (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): nitrile rubber (NBR) - 0.2 mm coating thickness

Eye protection:

Sealed safety goggles

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment (recommended filter type A2/P2)

Thermal hazard protection:

Wear thermal protective clothing, when necessary.

Environmental exposure controls:

Contain spills. Prevent releases. Observe national regulations on emissions. Ensure all national/local regulations are observed.

Other information:

Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless.
Odour	: Characteristic.
Odour threshold	: No data available
pH	: 8.5
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -1 °C
Boiling point	: No data available
Flash point	: > 100 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 0.99 - 1.01
Solubility	: No data available
Log Pow	: No data available
Viscosity, kinematic	: 2 mm ² /s
Viscosity, dynamic	: No data available
Explosive properties	: No data available

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Oxidising properties : No data available

Explosive limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable and non reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Incompatible materials. Extremely high or low temperatures.

10.5. Incompatible materials

Alkali metals. Oxidizing agent. Water reactive substances.

10.6. Hazardous decomposition products

Carbon oxides. Sulphur oxides. Nitrogen oxides (NOx). Sodium oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

2-(2-butoxyethoxy)ethanol (112-34-5)

LD50 oral	2410 - 5530 mg/kg bodyweight (Equivalent or similar to OECD 401, Mouse, Male, Experimental value, Oral)
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LD50 dermal rabbit	2764 mg/kg bodyweight (Equivalent or similar to OECD 402, Rabbit, Male, Experimental value, Dermal)
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Morpholine (110-91-8)

LD50 oral rat	1900 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
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LD50 dermal rabbit	500 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
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Skin corrosion/irritation : Not classified

pH: 8.5

Serious eye damage/irritation : Causes serious eye irritation.

pH: 8.5

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

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Viscosity, kinematic	2 mm ² /s
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SECTION 12: Ecological information

12.1. Toxicity

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EC50 Daphnia 1	463 mg/l (24h; Daphnia magna)
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EC50 Daphnia 2	242 mg/l (48h; Daphnia magna)
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ErC50 (algae)	29.3 mg/l (72h, Pseudokirchneriella subcapitata)
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NOEC chronic algae	4.5 mg/l (72h, Pseudokirchneriella subcapitata)
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2-(2-butoxyethoxy)ethanol (112-34-5)	
LC50 fish 1	1300 mg/l (Equivalent or similar to OECD 203, 96 h, Lepomis macrochirus, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	> 100 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 (algae)	1101 mg/l (Equivalent or similar to OECD 201, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)

Morpholine (110-91-8)	
LC50 fish 1	180 mg/l (96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	45 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Fresh water, Experimental value, Locomotor effect)
EC50 96h algae (1)	28 mg/l (US EPA, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth)

12.2. Persistence and degradability

JetFoam 6%	
Persistence and degradability	The product is readily biodegradable.
Biochemical oxygen demand (BOD)	0.0111 g O ₂ /g substance (5 days)
Chemical oxygen demand (COD)	0.229 g O ₂ /g substance
Biodegradation	97 % (28 days)

2-(2-butoxyethoxy)ethanol (112-34-5)	
Persistence and degradability	Readily biodegradable in water.

Morpholine (110-91-8)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.02 g O ₂ /g substance
ThOD	2.6 g O ₂ /g substance

12.3. Bioaccumulative potential

JetFoam 6%	
Bioaccumulative potential	The product is not expected to bioaccumulate.

2-(2-butoxyethoxy)ethanol (112-34-5)	
Log Pow	1 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Morpholine (110-91-8)	
BCF fish 1	< 2.8 (Equivalent or similar to OECD 305, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value)
Log Pow	-2.55 - -0.84 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

2-(2-butoxyethoxy)ethanol (112-34-5)	
Surface tension	27 mN/m (25 °C, 0.00212 mol/g)
Ecology - soil	Low potential for adsorption in soil.

Morpholine (110-91-8)	
Surface tension	0.0375 N/m
Log Koc	0.867 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

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PBT: not relevant – no registration required	
vPvB: not relevant – no registration required	
Component	
2-(2-butoxyethoxy)ethanol (112-34-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Concentrate

Prevent foam concentrate from entering ground water, surface water or storm drains. Small quantities of foam concentrate may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations.

Foam/Foam Solution

Prevent foam/foam solution from entering ground water, surface water or storm drains. Small quantities of foam solution may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations.

NOTE: Please consult Angus Fire for additional information regarding the disposal of foam concentrates and foam solutions or visit <https://angusfire.co.uk/use-discharge-and-disposal-of-firefighting-foam-products/>.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

European List of Waste (LoW) code : 16 03 05* - organic wastes containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Not applicable

- Transport by sea

Not applicable

- Air transport

Not applicable

- Inland waterway transport

Not applicable

- Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

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40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Morpholine
55. 2-(2-butoxyethoxy)ethanol (DEGBE)	2-(2-butoxyethoxy)ethanol
3(a) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	Morpholine
3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	JetFoam 6% - 2-(2-butoxyethoxy)ethanol - Morpholine

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

France

Occupational diseases : RG 84 - Affections engendrées par les solvants organiques liquides à usage professionnel

Germany

Reference to AwSV : Water hazard class (WGK) 1, Slightly hazardous to water (Classification according to AwSV, Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : 2-(2-butoxyethoxy)ethanol, Morpholine are listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Full text of H- and EUH-statements:	
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.

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H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II) - Angus Fire

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.