

**ANGUS
FIRE**

Forexpan

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

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Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : Forexpan
UFI : 5CG2-W0HU-D00P-DGJV
Product code : FC 09 01
Type of product : Firefighting foam concentrate

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	Only for healthcare professionals

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 1 H318
Hazardous to the aquatic environment – Chronic Hazard, Category 3 H412

Full text of H- and EUH-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) :



GHS05

Signal word (CLP) : Danger
Hazardous ingredients : Sodium laureth sulphate
Hazard statements (CLP) : H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements (CLP) : P264 - Wash hands thoroughly after handling.
P280 - Wear eye protection, protective clothing, protective gloves
P302+P352 - IF ON SKIN: Wash with plenty of water
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

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contact lenses, if present and easy to do. Continue rinsing.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

2.3. Other hazards

PBT: not relevant – no registration required

vPvB: not relevant – no registration required

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

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 substance with national workplace exposure limit(s) (BE, FR, GB, NL); substance with a Community workplace exposure limit	(CAS-No.) 112-34-5 (EC-No.) 203-961-6 (EC Index-No.) 603-096-00-8 (REACH-no) 01-2119475104-44	25 – 50	Eye Irrit. 2, H319
Sodium laureth sulphate	(CAS-No.) 68891-38-3 (EC-No.) 500-234-8 (REACH-no) 01-2119488639-16	10 – 25	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412
Ethane-1,2-diol substance with national workplace exposure limit(s) (BE, FR, GB, NL); substance with a Community workplace exposure limit	(CAS-No.) 107-21-1 (EC-No.) 203-473-3 (EC Index-No.) 603-027-00-1 (REACH-no) 01-2119456816-28	4 – 10	Acute Tox. 4 (Oral), H302 STOT RE 2, H373
Reaction mass of C-isodecyl and C-isoundecyl sulphonatosuccinate	(EC-No.) 944-611-9 (REACH-no) 01-2120267270-62	4 – 10	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319
1-dodecanol	(CAS-No.) 112-53-8 (EC-No.) 203-982-0 (REACH-no) 01-2119485976-15	0.1 – 4	Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
1-tetradecanol	(CAS-No.) 112-72-1 (EC-No.) 204-000-3 (REACH-no) 01-2119485910-33	0.1 – 1	Eye Irrit. 2, H319 Aquatic Chronic 1, H410
Morpholine substance with national workplace exposure limit(s) (BE, FR, GB, NL); substance with a Community workplace exposure limit	(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

Specific concentration limits:

Name	Product identifier	Specific concentration limits
Sodium laureth sulphate	(CAS-No.) 68891-38-3 (EC-No.) 500-234-8 (REACH-no) 01-2119488639-16	(5 \leq C < 10) Eye Irrit. 2, H319 (10 \leq C < 100) Eye Dam. 1, H318
Reaction mass of C-isodecyl and C-isoundecyl sulphonatosuccinate	(EC-No.) 944-611-9 (REACH-no) 01-2120267270-62	(50 \leq C < 100) Skin Irrit. 2, H315 (50 \leq C < 100) Eye Irrit. 2, H319

Full text of H- and EUH-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	: Wash with plenty of water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye damage.

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. Avoid release to the environment.

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	IOEL TWA	67.5 mg/m ³
EU	IOEL TWA [ppm]	10 ppm
EU	IOEL STEL	101.2 mg/m ³
EU	IOEL STEL [ppm]	15 ppm
Belgium	OEL TWA	67.5 mg/m ³
Belgium	OEL TWA [ppm]	10 ppm
Belgium	OEL STEL	101.2 mg/m ³
Belgium	OEL STEL [ppm]	15 ppm
France	VME (OEL TWA)	67.5 mg/m ³

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2-(2-butoxyethoxy)ethanol (112-34-5)		
France	VME (OEL TWA) [ppm]	10 ppm
France	VLE (OEL C/STEL)	101.2 mg/m ³
France	VLE (OEL C/STEL) [ppm]	15 ppm
Netherlands	TGG-8u (OEL TWA)	50 mg/m ³
Netherlands	TGG-8u (OEL TWA) [ppm]	7.4 ppm
Netherlands	TGG-15min (OEL STEL)	100 mg/m ³
Netherlands	TGG-15min (OEL STEL) [ppm]	15 ppm
United Kingdom	WEL TWA (OEL TWA) [1]	67.5 mg/m ³
United Kingdom	WEL TWA (OEL TWA) [2]	10 ppm
United Kingdom	WEL STEL (OEL STEL)	101.2 mg/m ³
United Kingdom	WEL STEL (OEL STEL) [ppm]	15 ppm
USA - ACGIH	ACGIH OEL TWA [ppm]	10 ppm (Inhalable fraction and vapor)
Ethane-1,2-diol (107-21-1)		
EU	IOEL TWA	52 mg/m ³
EU	IOEL TWA [ppm]	20 ppm
EU	IOEL STEL	104 mg/m ³
EU	IOEL STEL [ppm]	40 ppm
Belgium	OEL TWA	52 mg/m ³
Belgium	OEL TWA [ppm]	20 ppm
Belgium	OEL STEL	104 mg/m ³
Belgium	OEL STEL [ppm]	40 ppm
France	VME (OEL TWA)	52 mg/m ³
France	VME (OEL TWA) [ppm]	20 ppm
France	VLE (OEL C/STEL)	104 mg/m ³
France	VLE (OEL C/STEL) [ppm]	40 ppm
Netherlands	TGG-8u (OEL TWA)	52 mg/m ³ (damp) 10 mg/m ³ (druppels)
Netherlands	TGG-8u (OEL TWA) [ppm]	20 ppm (damp) 3.9 ppm (druppels)
Netherlands	TGG-15min (OEL STEL)	104 mg/m ³ (damp)
Netherlands	TGG-15min (OEL STEL) [ppm]	40 ppm (damp)
United Kingdom	WEL TWA (OEL TWA) [1]	10 mg/m ³ 52 mg/m ³
United Kingdom	WEL TWA (OEL TWA) [2]	20 ppm
United Kingdom	WEL STEL (OEL STEL)	104 mg/m ³
United Kingdom	WEL STEL (OEL STEL) [ppm]	40 ppm
USA - ACGIH	ACGIH OEL TWA [ppm]	25 ppm (Vapor fraction)
USA - ACGIH	ACGIH OEL STEL	10 mg/m ³ (Inhalable fraction, Aerosol only)
USA - ACGIH	ACGIH OEL STEL [ppm]	50 ppm (Vapor fraction)
Morpholine (110-91-8)		
EU	IOEL TWA	36 mg/m ³
EU	IOEL TWA [ppm]	10 ppm
EU	IOEL STEL	72 mg/m ³
EU	IOEL STEL [ppm]	20 ppm
Belgium	OEL TWA	36 mg/m ³
Belgium	OEL TWA [ppm]	10 ppm
Belgium	OEL STEL	72 mg/m ³
Belgium	OEL STEL [ppm]	20 ppm
France	VME (OEL TWA)	36 mg/m ³
France	VME (OEL TWA) [ppm]	10 ppm
France	VLE (OEL C/STEL)	72 mg/m ³
France	VLE (OEL C/STEL) [ppm]	20 ppm
Netherlands	TGG-8u (OEL TWA)	36 mg/m ³
Netherlands	TGG-8u (OEL TWA) [ppm]	10 ppm
Netherlands	TGG-15min (OEL STEL)	72 mg/m ³
Netherlands	TGG-15min (OEL STEL) [ppm]	20 ppm
United Kingdom	WEL TWA (OEL TWA) [1]	36 mg/m ³
United Kingdom	WEL TWA (OEL TWA) [2]	10 ppm
United Kingdom	WEL STEL (OEL STEL)	72 mg/m ³

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Morpholine (110-91-8)		
United Kingdom	WEL STEL (OEL STEL) [ppm]	20 ppm
USA - ACGIH	ACGIH OEL 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. 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	: No data available
Odour	: Characteristic.
Odour threshold	: No data available
pH	: 8 – 9.5
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -13 °C
Boiling point	: No data available
Flash point	: > 100 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability	: No data available
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Density	: 1.03 – 1.05
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: 20 mm²/s

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Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

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

Sodium laureth sulphate (68891-38-3)	
LD50 oral rat	4100 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
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, 14 day(s))
LD50 dermal rabbit	2764 mg/kg bodyweight (Equivalent or similar to OECD 402, Rabbit, Male, Experimental value, Dermal, 14 day(s))
Ethane-1,2-diol (107-21-1)	
LD50 oral rat	7712 mg/kg bodyweight (according to BASF-internal standards, Rat, Male / female, Experimental value, Aqueous solution, Oral, 7 day(s))
LD50 dermal	> 3500 mg/kg bodyweight (Mouse, Male / female, Experimental value, Dermal)
LC50 Inhalation - Rat	> 2.5 mg/l (6 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
1-dodecanol (112-53-8)	
LD50 oral	8000 mg/kg bodyweight (24 h, Rabbit, Male / female, Experimental value, Oral)
LD50 dermal rabbit	8000 – 12000 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 Inhalation - Rat	> 71 mg/l (1 h, Rat, Male / female, Experimental value of similar product, Inhalation (mist), 14 day(s))
1-tetradecanol (112-72-1)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral)
LD50 dermal rabbit	8000 mg/kg bodyweight (24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 Inhalation - Rat	> 1.5 mg/l air (1 h, Rat, Male / female, Experimental value, Inhalation (vapours))
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))
LD50 dermal rabbit	500 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))

Skin corrosion/irritation : Causes skin irritation.
pH: 8 – 9.5

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Serious eye damage/irritation	: Causes serious eye damage. pH: 8 – 9.5
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	20 mm ² /s

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Harmful to aquatic life with long lasting effects.

Sodium laureth sulphate (68891-38-3)	
LC50 - Fish [1]	7.1 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Flow-through system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	7.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	27.7 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)

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 - Crustacea [1]	> 100 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 96 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)

Ethane-1,2-diol (107-21-1)	
LC50 - Fish [1]	> 72860 mg/l (EPA 600/4-90/027, 96 h, Pimephales promelas, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, Daphnia magna, Static system, Fresh water, Experimental value)

1-dodecanol (112-53-8)	
LC50 - Fish [1]	1.01 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	0.765 mg/l (DIN 38412: German standard methods for the examination of water, waste water and sludge, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 algae	0.66 mg/l (Equivalent or similar to OECD 201, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)

1-tetradecanol (112-72-1)	
LC50 - Fish [1]	> 1 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value)
EC50 - Crustacea [1]	3.2 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value)

Morpholine (110-91-8)	
LC50 - Fish [1]	380 mg/l (96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	44.5 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

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Persistence and degradability	May cause long-term adverse effects in the environment.
Biochemical oxygen demand (BOD)	0.2 g O ₂ /g substance (5 days)
Chemical oxygen demand (COD)	1.1 g O ₂ /g substance
Biodegradation	90 % (28 days)

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Sodium laureth sulphate (68891-38-3)	
Persistence and degradability	Readily biodegradable in water.
2-(2-butoxyethoxy)ethanol (112-34-5)	
Persistence and degradability	Readily biodegradable in water.
Ethane-1,2-diol (107-21-1)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.47 g O ₂ /g substance
Chemical oxygen demand (COD)	1.24 g O ₂ /g substance
ThOD	1.29 g O ₂ /g substance
1-dodecanol (112-53-8)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
ThOD	3.09 g O ₂ /g substance
1-tetradecanol (112-72-1)	
Persistence and degradability	Readily biodegradable in water.
ThOD	3.13 g O ₂ /g substance
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	
Forexpan	
Bioaccumulative potential	The product is not expected to bioaccumulate.
Sodium laureth sulphate (68891-38-3)	
Partition coefficient n-octanol/water (Log Pow)	0.3 (Experimental value, OECD 123: Partition Coefficient (1-Octanol/Water): Slow-Stirring Method, 23 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
2-(2-butoxyethoxy)ethanol (112-34-5)	
Partition coefficient n-octanol/water (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).
Ethane-1,2-diol (107-21-1)	
Partition coefficient n-octanol/water (Log Pow)	-1.36 (Experimental value)
Bioaccumulative potential	Not bioaccumulative.
1-dodecanol (112-53-8)	
Partition coefficient n-octanol/water (Log Pow)	5.4 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 23 °C)
Bioaccumulative potential	High potential for bioaccumulation (Log Kow > 5).
1-tetradecanol (112-72-1)	
BCF - Fish [1]	26 (BCFBAF v3.01, Pisces, QSAR)
Partition coefficient n-octanol/water (Log Pow)	5.5 (Experimental value, ASTM E1147, 25 °C)
Bioaccumulative potential	High potential for bioaccumulation (Log Kow > 5).
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)
Partition coefficient n-octanol/water (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	
Sodium laureth sulphate (68891-38-3)	
Surface tension	33 mN/m (25 °C, 0.07 %, BS EN 14370:2004: Surface tension)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.34 (log Koc, QSAR)
Ecology - soil	Highly mobile in soil.
2-(2-butoxyethoxy)ethanol (112-34-5)	
Surface tension	27 mN/m (25 °C, 0.00212 mol/g)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.642 – 1 (log Koc, SRC PCKOCWIN v2.0, Calculated value)

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2-(2-butoxyethoxy)ethanol (112-34-5)	
Ecology - soil	Highly mobile in soil.
Ethane-1,2-diol (107-21-1)	
Surface tension	48.4 mN/m (20 °C)
Ecology - soil	Highly mobile in soil.
1-dodecanol (112-53-8)	
Surface tension	31.8 mN/m (23 °C, 6.4 mg/l)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.71 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value)
Ecology - soil	Low potential for mobility in soil.
1-tetradecanol (112-72-1)	
Surface tension	24 mN/m
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.53 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value)
Ecology - soil	Low potential for mobility in soil.
Morpholine (110-91-8)	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.81 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

Forexpan	
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
Sodium laureth sulphate (68891-38-3)	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
Ethane-1,2-diol (107-21-1)	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
1-dodecanol (112-53-8)	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
1-tetradecanol (112-72-1)	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
Morpholine (110-91-8)	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.

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

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SECTION 14: Transport information

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

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

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Listed on REACH Annex XVII (Restriction Conditions). The following restrictions are applicable:	
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	Forexpan ; 2-(2-butoxyethoxy)ethanol ; Ethane-1,2-diol ; Morpholine
3(c) 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 class 4.1	Forexpan
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

Contains no substance(s) listed on the REACH Candidate List

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

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15.1.2. National regulations

France

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

Germany

Regulatory reference : WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

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

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

SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed

SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : None of the components are listed

SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

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 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
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
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.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2

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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.