SAFETY DATA SHEET

AFFF 1%S C6

The safety data sheet is in accordance with Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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

Date issued	04.09.2012
Revision date	16.04.2018

1.1. Product identifier

Product name	AFFF 1%S C6
Article no.	V-AFFF1S

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

Use of the substance / preparation	Appliance protection.

1.3. Details of the supplier of the safety data sheet

Downstream user

Company name	Viking S.A.
Postal address	Z.I. Haneboesch
Postcode	L-4562
City	Differdange/Niederkorn
Country	Luxembourg
Telephone number	+352 58 37 37 1
Fax	+352 58 37 36
Website	http://www.viking-emea.com

1.4. Emergency telephone number

Emergency telephone	Telephone number: +44 1273 289451 Description: NCEC CareChem24
Identification, comments	Additional Emergency Phone Number in Section16

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to Regulation (EC) No 1272/ 2008 [CLP / GHS]	Eye Irrit. 2; H319; Calculation method

2.2. Label elements

Hazard pictograms (CLP)

Composition on the label	2-(2-Butoxyethoxy) ethanol 25 -29 %, Sulfuric acid, mono-C8-10-alkyl esters, sodium salts 1 -2,9 %, 1-Propanaminium, N-(3– aminopropyl)-2-hydroxy-N,Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts 0,1 -0,9 %
Signal word	Warning
Hazard statements	H319 Causes serious eye irritation.
Precautionary statements	P264 Wash thoroughly after handling. P280 Wear protective gloves / protective clothing / eye protection / face protection. 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 / vPvB	The product does not meet the criteria for PBT (persistent / bioaccumulative / toxic) or vPvB (very persistent / very bioaccumulative).

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Ethanediol	CAS No.: 107-21-1 EC No.: 203-473-3 Index No.: 603-027-00-1	Acute tox. 4; H302;	12 – 17,5 %
Alkyl polyglycoside	CAS No.: 68515-73-1 EC No.: 500-220-1 REACH Reg. No.: 01-2119488530-36-XXXX	Eye Dam. 1;H318	1 – 2,9 %
2-(2-Butoxyethoxy) ethanol	CAS No.: 112-34-5 EC No.: 203-961-6 Index No.: 603-096-00-8 REACH Reg. No.: 01-2119475104-44	Eye Irrit. 2; H319	25 -29 %
Diethylene glycol monomethyl ether	CAS No.: 111-77-3 EC No.: 203-906-6 Index No.: 603-107-00-6 REACH Reg. No.: 01-2119475100-52	Repr. 2;H361d*	0,1 -0,5 %
Methanol	CAS No.: 67-56-1 EC No.: 200-659-6 Index No.: 603-001-00-X	Flam. Liq. 2; H225 Acute tox. 3; H331 Acute tox. 3; H311	0,1 -0,5 %

	REACH Reg. No.: 01-2119392409-28	Acute tox. 3; H301 STOT SE1; H370	
Sulfuric acid, mono-C8-10-alkyl esters, sodium salts	CAS No.: 85338-42-7 EC No.: 286-718-7	Skin Irrit. 2; H315 Eye Dam. 1; H318	1 -2,9 %
1-Propanaminium, N-(3–aminopropyl) -2-hydroxy-N,Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	EC No.: 939-455-3 REACH Reg. No.: 01-2119970722-34	Eye Dam. 1; H318 Aquatic Chronic 3; H412	0,1 -0,9 %

SECTION 4: First aid measures

4.1. Description of first aid measures

General	Provide rest, warmth and fresh air. Get medical attention if any discomfort continues.
Inhalation	Fresh air and rest. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly with soap and water for several minutes. Get medical attention if any discomfort continues.
Eye contact	Immediately rinse with plenty of lukewarm water for at least 5 minutes. Remove any contact lenses and open eyelids widely. Contact physician if irritation persists.
Ingestion	Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions.
Recommended personal protective equipment for first aid responders	No recommendation given.

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

General symptoms and effects	After extensive contact, may cause irritation to skin. Ingestion of large quantities may cause nausea, vomiting, dizziness, confusion, lost of consciousness. Causes eye irritation.

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

Medical treatment	Treat Symptomatically.
Medical monitoring for delayed effects	No recommendation given.
Separate first aid equipment	Eye wash facility in working area.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	This product is not flammable.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	None.

Hazardous combustion products	In case of fire, carbon monoxide and carbon dioxide may be released.

5.3. Advice for firefighters

Fire fighting procedures	Follow the general fire precautions indicated by the workplace.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	Ensure good ventilation.
Personal protection measures	Avoid contact with skin and eyes. Do not breathe vapour. For personal protection, see section 8.

6.2. Environmental precautions

Environmental precautionary measures	Prevent discharge of larger quantity to drain. Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Clean up	Absorb in vermiculite, dry sand or earth and place into containers. Collect spills to suitable waste containers. Further handling of waste – see section 13.

6.4. Reference to other sections

Additional information	See Sections 8 and 13 for information concerning protective equipment and waste treatment methods.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapours. Wash hands before breaks and before smoking, eating or drinking. Wash hands and contaminated areas with water and soap after finished work. Container must be kept tightly closed. Wear protective equipment, see Section 8.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store at moderate temperatures in dry, well ventilated area. Keep container tightly closed. Protect against direct sunlight.

7.3. Specific end use(s)

Specific use(s)	See EWC-code under Section 13.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Substance	Identification	Value	TWA Year
Ethanediol	CAS No.: 107-21-1		

Alkyl polyglycoside	CAS No.: 68515-73-1

DNEL / PNEC

Substance	Alkyl polyglycoside
DNEL	**Group:** Consumer **Route of exposure:** Long term (repeated) – Inhalation – Systemic effect **Value:** 124 mg/m3 **Group:** Worker **Route of exposure:** Long term (repeated) – Inhalation – Systemic effect **Value:** 420 mg/m3 **Group:** Worker **Route of exposure:** Long term (repeated) – Dermal – Systemic effect **Value:** 595000 mg/kg bw/day **Group:** Consumer **Route of exposure:** Long term (repeated) – Oral – Systemic effect **Value:** 35,7 mg/kg bw/day **Group:** Consumer **Route of exposure:** Long term (repeated) – Dermal – Systemic effect **Value:** 357000 mg/kg bw/day
Substance	2-(2-Butoxyethoxy) ethanol
PNEC	**Comments:** Predicted No Effect Concentration 1 mg/L aquatic organisms 71 mg/L microorganisms 0,2 mg/kg terrestrial environment 50 mg/kg predators
Substance	Diethylene glycol monomethyl ether
PNEC	**Comments:** Predicted No Effect Concentration 12 mg/L aquatic organisms 100 mg/L microorganisms 1,4 mg/kg terrestrial environment 90 mg/kg predators

8.2. Exposure controls

Safety signs

Precautionary measures to prevent exposure

Appropriate engineering controls	An eye wash bottle must be available at the work site.

Eye / face protection

Suitable eye protection	Wear approved chemical safety goggles where eye exposure is reasonably probable.

Hand protection

Skin- / hand protection, long term contact	In cases of prolonged, repeated or extensive exposure, wear protective gloves.
Suitable gloves type	Rubber or plastic.

Skin protection

Suitable protective clothing	Use protective clothes in order to avoid skin contact.

Respiratory protection

Respiratory protection necessary at	Ensure good ventilation. In case of inadequate ventilation and work of brief duration, use suitable respiratory equipment.

Hygiene / environmental

Specific hygiene measures	No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Clear, yellowish liquid.
Colour	Yellowish.
Odour	Slight odour.
pH	Status: In delivery state Value: 7,3 – 8,3
Melting point / melting range	Comments: No information.
Freezing point	Value: -38 °C
Boiling point / boiling range	Comments: No information.
Flash point	Comments: Not relevant.
Evaporation rate	Comments: No information.
Flammability (solid, gas)	Not relevant.
Explosion limit	Comments: Product is not explosive.
Vapour pressure	Comments: No information.
Vapour density	Comments: No information.
Specific gravity	Value: ~ 1,05 g/ml
Bulk density	Comments: No information.
Solubility	Comments: Soluble in water.
Partition coefficient: n-octanol/water	Comments: No information.
Spontaneous combustability	Comments: No information.
Decomposition temperature	Comments: No information.

Viscosity	Value: ≤ 20 mPas Method: Brookfield DV
Explosive properties	Product is not explosive.
Oxidising properties	Does not meet the criteria for oxidising.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Stable product under normal conditions of handling and storage.

10.2. Chemical stability

Stability	Stable product under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Stable product under normal conditions of handling and storage.

10.4. Conditions to avoid

Conditions to avoid	Not known under normal conditions of handling and storage.

10.5. Incompatible materials

Materials to avoid	Alkali earth metals.

10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance	Alkyl polyglycoside
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** > 2000 mg/kg **Animal test species:** Rat **Test reference:** OECD 401 **Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** > 2000 mg/kg **Animal test species:** Rabbit **Test reference:** OECD 423

Substance	2-(2-Butoxyethoxy) ethanol
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** = 5660 mg/kg bw **Animal test species:** Rat **Comments:** Non-acute toxic. **Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** = 2700 mg/kg bw **Animal test species:** Rabbit **Comments:** Non-acute toxic.
Substance	Diethylene glycol monomethyl ether
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LC50 **Route of exposure:** Oral **Value:** = 4000 mg/kg bw **Animal test species:** Rat **Comments:** Non-acute toxic. **Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** = 6720 mg/kg bw **Animal test species:** Rabbit **Comments:** Non-acute toxic.
Substance	Sulfuric acid, mono-C8-10-alkyl esters, sodium salts
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LC50 **Route of exposure:** Oral **Value:** > 2000 mg/kg bw **Animal test species:** Rat **Comments:** Non-acute toxic.
Substance	1-Propanaminium, N-(3– aminopropyl)-2-hydroxy-N,Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** = 2950 mg/kg bw **Animal test species:** Rat **Test reference:** OECD 401 **Comments:** Non-acute toxic. **Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** > 2000 mg/kg bw **Animal test species:** Rat **Test reference:** OECD 402

Comments: Non-acute toxic.

Other information regarding health hazards

Skin contact	In case of prolonged contact wth skin, may cause irritation.
Eye contact	Causes serious eye irritation.
Ingestion	In case of ingestion of large quantities may cause nausea, vomiting, dizziness, confusion, loss of consciousness.
Sensitisation	No known chronic or acute health risks.
Mutagenicity	No known chronic or acute health risks.
Carcinogenicity, other information	No known chronic or acute health risks.
Reproductive toxicity	No known chronic or acute health risks.

Symptoms of exposure

In case of ingestion	Ingestion of large quantities may cause cause nausea, vomiting, dizziness, confusion, loss of consciousness.
In case of skin contact	After extensive contact, may cause irritation to skin.
In case of eye contact	Irritation of eyes and mucous membrane.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish	Value: ~ 250 mg/l Test duration: 96 h Species: Rainbow Trout
Substance	Alkyl polyglycoside
Acute aquatic, fish	**Value:** ~ 20 mg/l **Test duration:** 96 hrs **Species:** Cyprinodon Variegatus **Method:** OCDE 203
Substance	2-(2-Butoxyethoxy) ethanol
Acute aquatic, fish	**Toxicity type:** Acute **Value:** = 1300 mg/l **Effect dose concentration :** LC50 **Exposure time:** = 96 hour(s) **Species:** Lepomis macrochirus **Comments:** Not hazardous for environment.
Substance	Diethylene glycol monomethyl ether
Acute aquatic, fish	**Toxicity type:** Acute **Value:** = 1000 mg/l **Effect dose concentration :** LC50 **Exposure time:** = 96 h **Species:** Oncorhynchus mykiss

	Comments: Not hazardous for environment.
Substance	Methanol
Acute aquatic, fish	**Toxicity type:** Acute **Value:** = 15400 mg/l **Effect dose concentration :** LC50 **Exposure time:** = 96 hour(s) **Species:** Lepomis macrochirus **Comments:** Not hazardous for environment.
Substance	Sulfuric acid, mono-C8-10-alkyl esters, sodium salts
Acute aquatic, fish	**Toxicity type:** Acute **Value:** = 110 mg/l **Effect dose concentration :** LC50 **Exposure time:** 48 hour(s) **Species:** Leuciscus idus **Test reference:** DIN 38412 T15 **Comments:** Not hazardous for environment. **Toxicity type:** Acute **Value:** = 240 mg/l **Effect dose concentration :** EC50 **Species:** Daphnia magna **Test reference:** DIN 38412 T11 **Comments:** Not hazardous for environment.
Substance	Alkyl polyglycoside
Acute aquatic, algae	**Value:** ~ 21 mg/l **Test duration:** 72 hrs **Species:** Skeletonerna Costatum **Method:** ISO 10253
Substance	Diethylene glycol monomethyl ether
Acute aquatic, algae	**Toxicity type:** Acute **Value:** > 500 mg/l **Effect dose concentration :** IC50 **Exposure time:** 72 hour(s) **Species:** Scenedesmus subspicatus **Comments:** Not hazardous for environment.
Substance	Methanol
Acute aquatic, algae	**Toxicity type:** Acute **Value:** = 441 mg/l **Effect dose concentration :** IC50 **Exposure time:** = 72 hour(s) **Comments:** Not hazardous for environment.
Acute aquatic, Daphnia	Value: ~ 800 mg/l Test duration: 24 h Species: Daphnia Magna
Substance	Alkyl polyglycoside
Acute aquatic, Daphnia	**Value:** ~ 150 mg/l **Test duration:** 48 hrs

	Species: Acartia Tonsa **Method:** ISO 14669
Substance	2-(2-Butoxyethoxy) ethanol
Acute aquatic, Daphnia	**Toxicity type:** Acute **Value:** > 100 mg/l **Effect dose concentration :** EC50 **Exposure time:** 48 hour(s) **Species:** D. magna **Comments:** Not hazardous for environment.
Substance	Diethylene glycol monomethyl ether
Acute aquatic, Daphnia	**Toxicity type:** Acute **Value:** = 1192 mg/l **Effect dose concentration :** EC50 **Exposure time:** = 48 hour(s) **Species:** D. magna **Comments:** Not hazardous for environment.
Substance	Methanol
Acute aquatic, Daphnia	**Toxicity type:** Acute **Value:** = 24500 mg/l **Effect dose concentration :** EC50 **Exposure time:** = 48 hour(s) **Species:** D.magna **Comments:** Not hazardous for environment.
Ecotoxicity	The product is not environmentally hazardous to aquatic life.
Aquatic, comments	On basis of test data.

12.2. Persistence and degradability

Substance	Alkyl polyglycoside
Biodegradability	**Value:** ~ 100 % **Method:** OCDE 301E **Test period:** 28 days
Substance	2-(2-Butoxyethoxy) ethanol
Biodegradability	**Value:** = 89 % **Method:** degradation in 28 days OECD 301C **Comments:** Readily biodegradable.
Substance	Diethylene glycol monomethyl ether
Biodegradability	**Value:** = 100 % **Method:** degradation in 7 days OECD 302B **Comments:** Readily biodegradable.
Substance	Methanol
Biodegradability	**Value:** = 99 % **Method:** degradation in 28 days OECD 301D **Comments:** Readily biodegradable.
Substance	Sulfuric acid, mono-C8-10-alkyl esters, sodium salts

Biodegradability	**Value:** > 60 % **Method:** OECD 301D **Comments:** Readily biodegradable. **Test period:** 10 day(s)
Substance	1-Propanaminium, N-(3– aminopropyl)-2-hydroxy-N,Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts
Biodegradability	**Value:** = 57 % **Method:** OECD 306 **Test period:** = 28 day(s)
Persistence and degradability, comments	The product is expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential	Bioaccumulation: Is not expected to be bioaccumulable.
Substance	2-(2-Butoxyethoxy) ethanol
Bioconcentration factor (BCF)	**Value:** = 2,9 **Comments:** No bioaccumulation expected.
Substance	Diethylene glycol monomethyl ether
Bioconcentration factor (BCF)	**Value:** = 0,2 **Comments:** No bioaccumulation expected.
Substance	Methanol
Bioconcentration factor (BCF)	**Value:** = 1 **Comments:** No bioaccumulation expected.

12.4. Mobility in soil

Mobility	The product contains substances, which are water soluble and may spread in water systems.

12.5. Results of PBT and vPvB assessment

PBT assessment results	Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Dispose of waste and residues in accordance with local authority requirements.
EWC waste code	EWC waste code: 160305 organic wastes containing dangerous substances Classified as hazardous waste: Yes
EU Regulations	Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

SECTION 14: Transport information

Dangerous goods	No

14.1. UN number

Comments	Not applicable. No information required.

14.2. UN proper shipping name

Comments	Not applicable. No information required.

14.3. Transport hazard class(es)

14.4. Packing group

Comments	Not applicable. No information required.

14.5. Environmental hazards

Comments	Not applicable. No information required.

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Additional information

Additional information	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

SECTION 15: Regulatory information

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

EEC-directive	Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC. Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods. Commission Directive 2012/45/EU adapting for the second time the Annexes to Directive 2008/68/EC of the European Parliament and of the Council on the inland transport of dangerous goods to scientific and technical progress.
National regulations	Deutschland Wassergefährdungsklasse (WGK): 2
Legislation and regulations	Regulation (EC) No 1272/2008 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. Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2. Chemical safety assessment

Chemical safety assessment performed	Yes

SECTION 16: Other information

List of relevant H-phrases (Section 2 and 3)	H225 Highly flammable liquid and vapour. H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H315 Causes skin irritation. H318 Causes Serious eye damage. H319 Causes serious eye irritation. H331 Toxic if inhaled. H370 Causes damage to organs H412 Harmful to aquatic life with long lasting effects.
Classification according to Regulation (EC) No 1272/ 2008 [CLP / GHS]	Eye Irrit. 2; H319; Calculation method
Additional information	Emergency Phone No *Europe (English, Dutch, French, German, Italian, Spanish) +44 1273 289451 France (English, French) +33 1 72 11 00 03 Germany (English, German) +49 69 222 25285 Spain (English, Spanish) +34 91 114 2520 Italy (English, Italian) +39 02 3604 2884 Netherlands (English, Dutch) +31 10 713 8195 *Middle East (English, Arabic) +44 1273 289454 United States (English, French, Spanish) +1 866 928 0789 Canada (English, French) +1 800 579 7421 United States and Canada (English) +1 202 464 2554 Mexico (English, Spanish) +52 55 5004 8763 Brazil (Portuguese, Spanish, English) +55 11 3197 5891 Chile (English, Spanish) +56 2 2582 9336 Colombia (English, Spanish) +57 1 508 7337 Argentina (English, Spanish) +54 11 5984 3690 *East/South East Asia (English, Bahasa Malaysia, Hindi, Japanese, Korean, Mandarin, Tagalog) +65 3158 1412 China (English, Mandarin) +86 512 8090 3042 China (Mainland) (English, Mandarin) **+86 532 8388 9090 Japan (English, Japanese) +81 3 4578 9341 Malaysia (English, Malaysian) +60 3 6207 4347 India (English, Hindi) 000 800 100 7479 Philippines (English, Tagalog) +63 2 231 2149 South Korea (English, Korean) +82 2 3479 8401 Australia (English) +61 2 8014 4558 Australia (English) 18000 74234 New Zealand (English) +64 9 929 1483 New Zealand (English) 0800 446 881
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