SAFETY DATA SHEET

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

Product identifier

Trade name or designation of the mixture	Tridol S3
Registration number	-
Synonyms	Aqueous Film Forming Foam (AFFF)
SDS number	-
Product code	120-05
Date of first issue	07-October-2010
Version number	02
Revision date	03-December-2014
Supersedes date	07-October-2010

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

Identified uses	Fire fighting foam concentrate.
Uses advised against	None known.

Details of the supplier of the safety data sheet

Supplier

Company name	Angus Fire Ltd
Address	Station Road Bentham, Lancashire, LA2 7NA
Phone number:	0044 (0)15 2426 4000
e-mail	general.enquiries@angusuk.co.uk
Contact person	EH&S Manager
Emergency telephone number	0044 (0)15 2426 4000 (Standard office hours: Monday to Friday 8:30am - 4:30pm GMT)

Section 2: Hazards identification

Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification Xi;R36

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Serious eye damage/eye irritation	Category 2	Causes serious eye irritation.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Irritating to eyes. Occupational exposure to the substance or mixture may cause adverse health effects.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	May cause skin irritation.
Main symptoms	Symptoms can include irritation, redness, scratching of the cornea, and tearing. Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: 2-(2-butoxyethoxy)-ethanol

Signal word Warning

Hazard statements Causes serious eye irritation.

Precautionary statements

Prevention Wear eye/face protection. Wash hands thoroughly after handling.

Response IF IN EYES: 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.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Supplemental label information Not applicable.

Other hazards None known.

Section 3: Composition/information on ingredients

Mixture

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
2-(2-butoxyethoxy)-ethanol	15 - 30	112-34-5 203-961-6	-	603-096-00-8	#
Classification: **DSD:** Xi;R36 **CLP:** Eye Irrit. 2;H319					
Magnesium sulphate	1 - 5	7487-88-9 231-298-2	-	-	#
Classification: **DSD:** - **CLP:** -					
Sodium octyl sulphate	1 - 5	142-31-4 205-535-5	-	-	
Classification: **DSD:** Xi;R36/37/38 **CLP:** Skin Irrit. 2;H315, Eye Irrit. 2;H319, STOT SE 3;H335					
Water	Balance	7732-18-5 231-791-2	-	-	
Classification: **DSD:** - **CLP:** -					

#: This substance has workplace exposure limit(s).
CLP: Regulation No. 1272/2008.
DSD: Directive 67/548/EEC.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
The full text for all R-phrases is displayed in Section 16.

Section 4: First aid measures

Description of first aid measures

Inhalation Move injured person into fresh air and keep person calm under observation. Get medical attention, if needed.

Skin contact Wash the skin immediately with soap and water. Get medical attention if irritation develops and persists.

Eye contact Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if irritation develops and persists.

Ingestion Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable take to hospital along with these instructions. Only induce vomiting at the instruction of medical personnel.

Most important symptoms and effects, both acute and delayed Symptoms can include irritation, redness, scratching of the cornea, and tearing. Prolonged or repeated skin contact may cause drying, cracking, or irritation. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.

Section 5: Firefighting measures

General fire hazards Product is an extinguishing medium. It does not burn or support combustion.

Extinguishing media

Suitable extinguishing media No specific measures are required as this product is a fire extinguishing medium.

Unsuitable extinguishing media Not applicable.

Special hazards arising from the substance or mixture Not a fire hazard.

Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Special firefighting procedures No specific precautions.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with skin and eyes. Avoid inhalation of mists or aerosols. Provide adequate ventilation. Wear protective clothing as described in section 8 of this safety data sheet.

For emergency responders Use personal protection recommended in section 8 of the SDS.

Environmental precautions For large (industrial) releases, prevent spill from entering a waterway.

Methods and material for containment and cleaning up Absorb spillage with suitable absorbent material. Collect and dispose of spillage as indicated in Section 13.

Reference to other sections For personal protection, see section 8.
For waste disposal, see section 13.

Section 7: Handling and storage

Precautions for safe handling Avoid contact with skin and eyes. Wear appropriate personal protective equipment. Wash hands after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store at temperature below 40°C. Store above freezing. Read and follow manufacturer's recommendations. Store away from incompatible materials.

Specific end use(s) Fire fighting foam concentrate.

Section 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Austria. MAK List

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	MAK	97,5 mg/m3
		10 ppm
	STEL	101,2 mg/m3
		15 ppm

Belgium. Exposure Limit Values.

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m3
		15 ppm
	TWA	67,5 mg/m3
		10 ppm

Czech Republic. OELs. Government Decree 361

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	Ceiling	100 mg/m3
	TWA	70 mg/m3

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	VLE	101,2 mg/m3
		15 ppm
	VME	67,5 mg/m3
		10 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	AGW	100 mg/m3

Italy. OELs

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m3
		15 ppm
	TWA	67,5 mg/m3
		10 ppm

Netherlands. OELs (binding)

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	100 mg/m3
	TWA	50 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	TLV	10 ppm
		68 mg/m3

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	100 mg/m3
	TWA	67 mg/m3

Hygiene Norm GN 2.2.5.2439-09. Maximum allowable concentration (MAC) of harmful substances in the air of working zones. Executive No. 76 of 30 april 2006. Including Appendixes No.1, 2, 3 and 4.

Components	Type	Value	Form
2-(2-butoxyethoxy)-ethanol (112-34-5)	Ceiling	10 mg/m3	Aerosol
Magnesium sulphate (7487-88-9)	Ceiling	2 mg/m3	Aerosol

Spain. Occupational Exposure Limits

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m3
		15 ppm
	TWA	67,5 mg/m3
		10 ppm

Sweden. Occupational Exposure Limit Values

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	200 mg/m3
		30 ppm
	TWA	100 mg/m3
		15 ppm

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m3 15 ppm
	TWA	67 mg/m3 10 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m3 15 ppm
	TWA	67,5 mg/m3 10 ppm

Recommended monitoring procedures Follow standard monitoring procedures.

DNEL Not available.

PNEC Not available.

Exposure controls

Appropriate engineering controls Ensure adequate ventilation, especially in confined areas. Observe occupational exposure limits and minimise the risk of exposure.

Individual protection measures, such as personal protective equipment

General information Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear approved safety goggles.

Skin protection

- Hand protection Wear suitable gloves. Butyl rubber gloves are recommended. Suitable gloves can be recommended by the glove supplier.

- Other Wear suitable protective clothing.

Respiratory protection In case of inadequate ventilation: Use respiratory equipment with combination filter, type A2/P2.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Handle in accordance with good industrial hygiene and safety practices. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Environmental manager must be informed of all major spillages.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid.

Form Liquid.

Colour Clear pale yellow.

Odour Organic.

Odour threshold Not available.

pH 6,5 - 8 at 20 °C

Melting point/freezing point -3 °C (26,6 °F)

Boiling point, initial boiling point, and boiling range 100 °C (212 °F) at 760 mmHg

Flash point > 98 °C (> 208,4 °F)

Auto-ignition temperature Not applicable.

Flammability (solid, gas) Not available.

Flammability limit - lower (%) Not applicable.

Flammability limit - upper (%) Not applicable.

Oxidising properties Not applicable.

Explosive properties Not applicable.

Explosive limit Not applicable.

Vapour pressure	Not applicable.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Relative density	1,02
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	No data available.
Decomposition temperature	Not available.
Viscosity	3 cSt
Percent volatile	Not available.
Other data	
Flammability	Not applicable.
Other information	No relevant additional information available.

Section 10: Stability and reactivity

Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Contact with incompatible materials. Excessive heat. Freezing (Product properties are unaffected).
Incompatible materials	Alkali metals. Strong oxidising agents. Water reactive materials.
Hazardous decomposition products	Carbon oxides. Sulphur oxides. Hydrogen fluoride. Nitrogen oxides (NOx). Magnesium oxides.

Section 11: Toxicological information

General information	The information in this section is for the individual ingredients that are expected to contribute to the potential health effects of this product.

Information on likely routes of exposure

Ingestion	May be absorbed in the body and cause dizziness, nausea and vomiting.
Inhalation	May cause respiratory tract irritation.
Skin contact	May cause skin irritation.
Eye contact	Causes serious eye irritation.
Symptoms	Symptoms include itching, burning, redness, and tearing of eyes. Symptoms may include redness, drying and cracking of the skin.

Information on toxicological effects

Acute toxicity	Causes eye irritation. May cause skin and respiratory tract irritation.

Components	**Test results**
2-(2-butoxyethoxy)-ethanol (112-34-5)	Acute Dermal LD50 Rabbit: 2700 mg/kg Acute Oral LD50 Rat: 4500 mg/kg

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitisation	No data available.
Skin sensitisation	Not a skin sensitiser.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.
Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available.
Aspiration hazard	No data available.
Mixture versus substance information	None known.

Other information Persons with pre-existing skin disorders may be more susceptible to the effects of the product.

Section 12: Ecological information

Toxicity

Product	Test results
Tridol S3 (Mixture)	EC50 Water flea (Daphnia magna): 681 ppm 24 Hours
	EC50 Water flea (Daphnia magna): 147 ppm 48 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): 390 ppm 24 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): > 560 ppm 3 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): 390 ppm 48 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): > 560 ppm 6 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): 390 ppm 72 Hours
	LC50 Rainbow trout, donaldson trout (Oncorhynhus mykiss): 390 ppm 96 Hours

Components	Test results
Magnesium sulphate (7487-88-9)	EC50 Tubificid worm (Tubifex tubifex): 149,6 - 191,36 mg/l 48 hours
	LC50 Fathead minnow (Pimephales promelas): 2610 - 3080 mg/l 96 hours

Persistence and degradability The product is biodegradable. COD: 0,65 gg-1 BOD: 34% / 5 days.

Bioaccumulative potential The product is not expected to bioaccumulate.

Mobility The product is water soluble and may spread in water systems.

Environmental fate - Partition coefficient No data available.

Mobility in soil No data available.

Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

Other adverse effects The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Section 13: Disposal considerations

Waste treatment methods

Residual waste Dispose of waste and residues in accordance with local authority requirements.

Contaminated packaging Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code 16 03 05* Waste codes should be assigned by the user based on the application for which the product was used.

Disposal methods/information Dispose of waste and residues in accordance with local authority requirements.

Section 14: Transport information

ADR

The product is not covered by international regulation on the transport of dangerous goods.

RID

The product is not covered by international regulation on the transport of dangerous goods.

ADN

The product is not covered by international regulation on the transport of dangerous goods.

IATA

The product is not covered by international regulation on the transport of dangerous goods.

IMDG

The product is not covered by international regulation on the transport of dangerous goods.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code No information available.

Section 15: Regulatory information

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

EU Regulations

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

Not listed.

Directive 96/61/EC concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution Emission Registery (EPER)

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1). Candidate List

Not listed.

Other regulations	The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.
National regulations	Not available.
Chemical safety assessment	No Chemical Safety Assessment has been carried out.

Section 16: Other information

List of abbreviations	DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.
References	US. IARC Monographs on Occupational Exposures to Chemical Agents EPA: Acquire database NLM: Hazardous Substances Data Base ACGIH
Information on evaluation method leading to the classification of mixture	The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.
Full text of any statements or R-phrases and H-phrases under Sections 2 to 15	R36 Irritating to eyes. R36/37/38 Irritating to eyes, respiratory system and skin. H315 - Causes skin irritation. H319 - Causes serious eye irritation. H335 - May cause respiratory irritation.
Training information	Follow training instructions when handling this material.
Disclaimer	This information is based on our current knowledge and is believed to be correct as of the date issued. The information is intended to describe the product for the purposes of health, safety and environmental requirements only and no warranty, express or implied, is made. It should also not be construed as guaranteeing any specific property of the product. In addition, information obtained from a database is subject to change and may not be as current as the information in the MSDS available directly from Angus Fire.