

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

<b>Trade name or designation of the mixture</b>	Tridol C3
<b>Registration number</b>	-
<b>Synonyms</b>	Aqueous Film Forming Foam (AFFF)
<b>SDS number</b>	-
<b>Product code</b>	120-25
<b>Date of first issue</b>	19-November-2010
<b>Version number</b>	04
<b>Revision date</b>	03-December-2014
<b>Supersedes date</b>	21-February-2011

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

<b>Identified uses</b>	Fire fighting foam concentrate.
<b>Uses advised against</b>	None known.

**Details of the supplier of the safety data sheet****Supplier**

<b>Company name</b>	Angus Fire Ltd
<b>Address</b>	Station Road Bentham, Lancashire, LA2 7NA
<b>Phone number:</b>	0044 (0)15 2426 4000
<b>e-mail</b>	general.enquiries@angusuk.co.uk
<b>Contact person</b>	EH&S Manager
<b>Emergency telephone number</b>	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**

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

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

**Classification** Xi;R36

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

<b>Health hazards</b>		
Serious eye damage/eye irritation	Category 2	Causes serious eye irritation.

**Hazard summary**

<b>Physical hazards</b>	Not classified for physical hazards.
<b>Health hazards</b>	Irritating to eyes. Occupational exposure to the substance or mixture may cause adverse health effects.
<b>Environmental hazards</b>	Not classified for hazards to the environment.
<b>Specific hazards</b>	May cause skin irritation. May cause mild central nervous system effects.
<b>Main symptoms</b>	Symptoms can include irritation, redness, scratching of the cornea, and tearing. Symptoms may include redness, oedema, drying, defatting and cracking of the skin.

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

**Contains:** 2-(2-butoxyethoxy)-ethanol



<b>Signal word</b>	Warning
<b>Hazard statements</b>	Causes serious eye irritation.
<b>Precautionary statements</b>	
<b>Prevention</b>	Wear eye/face protection. Wash hands thoroughly after handling.
<b>Response</b>	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.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Supplemental label information</b>	Not applicable.
<b>Other hazards</b>	Not a PBT or vPvB substance or mixture.

### Section 3: Composition/information on ingredients

#### Mixture

##### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
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2-(2-butoxyethoxy)-ethanol	10 - <20	112-34-5 203-961-6	-	603-096-00-8	#
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**Classification:**   **DSD:** Xi;R36  
                          **CLP:** Eye Irrit. 2;H319

Magnesium sulphate	1 - < 3	7487-88-9 231-298-2	-	-	#
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**Classification:**   **DSD:** -  
                          **CLP:** -

Cocoamido propyl betaine	0,1 - 0,5	61789-40-0 263-058-8	-	-	
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**Classification:**   **DSD:** Xi;R41, N;R50  
                          **CLP:** Eye Dam. 1;H318, Aquatic Acute 1;H400

Sodium acetate	0,1 - 0,5	127-09-3 204-823-8	-	-	#
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**Classification:**   **DSD:** -  
                          **CLP:** -

Water	Balance	7732-18-5 231-791-2	-	-	
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**Classification:**   **DSD:** -  
                          **CLP:** -

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

#: This substance has workplace exposure limit(s).

**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- and H-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.

<b>Eye contact</b>	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 persists after washing.
<b>Ingestion</b>	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.
<b>Most important symptoms and effects, both acute and delayed</b>	Symptoms include itching, burning, redness, and tearing of eyes. Symptoms may include redness, oedema, drying, defatting and cracking of the skin.
<b>Indication of any immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically.

## Section 5: Firefighting measures

<b>General fire hazards</b>	Product is an extinguishing media. It does not burn or support combustion.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	No specific measures are required as this product is a fire extinguishing medium.
<b>Unsuitable extinguishing media</b>	Not applicable.
<b>Special hazards arising from the substance or mixture</b>	Not a fire hazard.
<b>Advice for firefighters</b>	
<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
<b>Special firefighting procedures</b>	No specific precautions.

## Section 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	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.
<b>For emergency responders</b>	Use personal protection recommended in section 8 of the SDS.
<b>Environmental precautions</b>	For large (industrial) releases, prevent spill from entering a waterway.
<b>Methods and material for containment and cleaning up</b>	Absorb spillage with suitable absorbent material. Collect and dispose of spillage as indicated in Section 13.
<b>Reference to other sections</b>	For personal protection, see section 8. For waste disposal, see Section 13.

## Section 7: Handling and storage

<b>Precautions for safe handling</b>	Avoid contact with skin and eyes. Wear appropriate personal protective equipment. Wash hands after handling. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	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.
<b>Specific end use(s)</b>	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/m <sup>3</sup>
	STEL	10 ppm
		101,2 mg/m <sup>3</sup> 15 ppm

##### Belgium. Exposure Limit Values.

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m <sup>3</sup>
	TWA	15 ppm
		67,5 mg/m <sup>3</sup> 10 ppm

**Czech Republic. OELs. Government Decree 361**

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	Ceiling	100 mg/m <sup>3</sup>
	TWA	70 mg/m <sup>3</sup>

**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/m <sup>3</sup>
	VME	15 ppm
		67,5 mg/m <sup>3</sup>
		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/m <sup>3</sup>

**Italy. OELs**

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m <sup>3</sup>
	TWA	15 ppm
		67,5 mg/m <sup>3</sup>
		10 ppm

**Netherlands. OELs (binding)**

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	100 mg/m <sup>3</sup>
	TWA	50 mg/m <sup>3</sup>

**Norway. Administrative Norms for Contaminants in the Workplace**

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	TLV	10 ppm
		68 mg/m <sup>3</sup>

**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/m <sup>3</sup>
	TWA	67 mg/m <sup>3</sup>

**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/m <sup>3</sup>	Aerosol
Magnesium sulphate (7487-88-9)	Ceiling	2 mg/m <sup>3</sup>	Aerosol
Sodium acetate (127-09-3)	Ceiling	10 mg/m <sup>3</sup>	Aerosol

**Spain. Occupational Exposure Limits**

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m <sup>3</sup>
	TWA	15 ppm
		67,5 mg/m <sup>3</sup>
		10 ppm

## Sweden. Occupational Exposure Limit Values

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	200 mg/m <sup>3</sup>
	TWA	30 ppm 100 mg/m <sup>3</sup> 15 ppm

## Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m <sup>3</sup>
	TWA	15 ppm 67 mg/m <sup>3</sup> 10 ppm

## UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-(2-butoxyethoxy)-ethanol (112-34-5)	STEL	101,2 mg/m <sup>3</sup>
	TWA	15 ppm 67,5 mg/m <sup>3</sup> 10 ppm

<b>Recommended monitoring procedures</b>	Follow standard monitoring procedures.
<b>DNEL</b>	Not available.
<b>PNEC</b>	Not available.
<b>Exposure controls</b>	
<b>Appropriate engineering controls</b>	Ensure adequate ventilation, especially in confined areas. Observe occupational exposure limits and minimise the risk of exposure.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>General information</b>	Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<b>Eye/face protection</b>	Wear approved safety goggles.
<b>Skin protection</b>	
<b>- Hand protection</b>	Wear suitable gloves. Butyl rubber gloves are recommended. Suitable gloves can be recommended by the glove supplier.
<b>- Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of inadequate ventilation: Use respiratory equipment with combination filter, type A2/P2.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practices. Routinely wash work clothing and protective equipment to remove contaminants.
<b>Environmental exposure controls</b>	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

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Colour</b>	Pale yellow.
<b>Odour</b>	Organic.
<b>Odour threshold</b>	Not available.
<b>pH</b>	6 - 7 at 20 °C
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point, initial boiling point, and boiling range</b>	100 °C (212 °F) at 760 mmHg
<b>Flash point</b>	> 98 °C (> 208,4 °F)
<b>Auto-ignition temperature</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Not available.

<b>Flammability limit - lower (%)</b>	Not applicable.
<b>Flammability limit - upper (%)</b>	Not applicable.
<b>Oxidising properties</b>	Not applicable.
<b>Explosive properties</b>	Not applicable.
<b>Explosive limit</b>	Not applicable.
<b>Vapour pressure</b>	Not applicable.
<b>Vapour density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Relative density</b>	1,016
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	No data available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Percent volatile</b>	Not available.
<b>Other data</b>	
<b>Flammability</b>	Not applicable.
<b>Other information</b>	No relevant additional information available.

## Section 10: Stability and reactivity

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

## Section 11: Toxicological information

<b>General information</b>	The information in this section is for the individual ingredients that are expected to contribute to the potential health effects of this product.
<b>Information on likely routes of exposure</b>	
<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Inhalation</b>	May cause mild central nervous system effects.
<b>Skin contact</b>	May cause skin irritation.
<b>Eye contact</b>	Causes eye irritation.
<b>Symptoms</b>	Exposed may experience eye tearing, redness, and discomfort. Symptoms may include redness, drying and cracking of the skin.
<b>Information on toxicological effects</b>	
<b>Acute toxicity</b>	Causes serious eye irritation. May cause skin irritation. May cause mild central nervous system effects.

<b>Components</b>	<b>Test results</b>
2-(2-butoxyethoxy)-ethanol (112-34-5)	Acute Dermal LD50 Rabbit: 2700 mg/kg Acute Oral LD50 Rat: 4500 mg/kg
Sodium acetate (127-09-3)	Acute Oral LD50 Rat: 3500 mg/kg
Cocoamido propyl betaine (61789-40-0)	Acute Oral LD50 Rat: 4900 mg/kg
<b>Skin corrosion/irritation</b>	May cause skin irritation.
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.
<b>Respiratory sensitisation</b>	No data available.
<b>Skin sensitisation</b>	Not a skin sensitiser.
<b>Germ cell mutagenicity</b>	No data available.

<b>Carcinogenicity</b>	No data available.
<b>Reproductive toxicity</b>	No data available.
<b>Specific target organ toxicity - single exposure</b>	No data available.
<b>Specific target organ toxicity - repeated exposure</b>	No data available.
<b>Aspiration hazard</b>	No data available.
<b>Mixture versus substance information</b>	None known.
<b>Other information</b>	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 C3 (Mixture)	EC50 Water flea (Daphnia magna): 8200 ppm 24 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

<b>Persistence and degradability</b>	The product is biodegradable. COD: 0,49 gg-1 BOD: 9% / 5 days.
<b>Bioaccumulative potential</b>	The product is not expected to bioaccumulate.
<b>Mobility</b>	The product is water soluble and may spread in water systems.
<b>Environmental fate - Partition coefficient</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Results of PBT and vPvB assessment</b>	Not a PBT or vPvB substance or mixture.
<b>Other adverse effects</b>	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13: Disposal considerations

### Waste treatment methods

<b>Residual waste</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Contaminated packaging</b>	Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>EU waste code</b>	16 03 05* Waste codes should be assigned by the user based on the application for which the product was used.
<b>Disposal methods/information</b>	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 Registry (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.  
R41 Risk of serious damage to eyes.  
R50 Very toxic to aquatic organisms.  
H318 - Causes serious eye damage.  
H319 - Causes serious eye irritation.  
H400 - Very toxic to aquatic life.

### 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.