

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

<b>Trade name or designation of the mixture</b>	Alcoseal 3/6 LT
<b>Registration number</b>	-
<b>Synonyms</b>	None.
<b>SDS number</b>	-
<b>Product code</b>	70-10
<b>Date of first issue</b>	16-September-2011
<b>Version number</b>	02
<b>Revision date</b>	03-December-2014
<b>Supersedes date</b>	16-September-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** R43

The full text for all R-phrases is displayed in section 16.

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

<b>Health hazards</b>		
Skin sensitisation	Category 1	May cause an allergic skin reaction.

**Hazard summary**

<b>Physical hazards</b>	Not classified for physical hazards.
<b>Health hazards</b>	May cause sensitisation by skin contact. 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 and eye irritation. May cause irritation of nose, throat and mucous membranes. May cause central nervous system effects. May cause damage to the kidneys.
<b>Main symptoms</b>	Contact may cause irritation and redness. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Sensitisation.

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

<b>Contains:</b>	1,3,5-tris(2-hydroxyethyl)hexahydro-1,3,5-triazine
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<b>Signal word</b>	Warning
<b>Hazard statements</b>	May cause an allergic skin reaction.
<b>Precautionary statements</b>	
<b>Prevention</b>	Avoid breathing mist/vapours/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves.
<b>Response</b>	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Supplemental label information</b>	None.
<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
Ethylene glycol	10 - 17	107-21-1 203-473-3	-	603-027-00-1	#
<b>Classification:</b>	<b>DSD:</b> Xn;R22				
	<b>CLP:</b> Acute Tox. 4;H302				
2-Methylpentane-2,4-diol	1 - 5	107-41-5 203-489-0	-	603-053-00-3	#
<b>Classification:</b>	<b>DSD:</b> Xi;R36/38				
	<b>CLP:</b> Skin Irrit. 2;H315, Eye Irrit. 2;H319				
1,3,5-tris(2-hydroxyethyl)hexahydro-1,3,5-triazine	0,1 - 0,5	4719-04-4 225-208-0	-	613-114-00-6	
<b>Classification:</b>	<b>DSD:</b> Xn;R22, R43				
	<b>CLP:</b> Acute Tox. 4;H302, Skin Sens. 1;H317				

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

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

<b>Composition comments</b>	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.
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### Section 4: First aid measures

#### Description of first aid measures

<b>Inhalation</b>	Move injured person into fresh air and keep person calm under observation. Get medical attention, if needed.
<b>Skin contact</b>	Wash the skin immediately with soap and water. Get medical attention if irritation develops and persists. If skin rash or an allergic skin reaction develops, get medical attention.
<b>Eye contact</b>	Immediately flush eye(s) with plenty of water. Remove any contact lenses. Get medical attention if irritation develops or persists.
<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.

**Most important symptoms and effects, both acute and delayed** Contact may cause irritation and redness. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Sensitisation.

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

## Section 5: Firefighting measures

<b>General fire hazards</b>	Product is an extinguishing medium. 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.

**Environmental precautions** Prevent entry into waterways, sewer, basements or confined areas.

**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. 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-Methylpentane-2,4-diol (107-41-5)	Ceiling	10 ppm	
	MAK	10 ppm 49 mg/m3	
Ethylene glycol (107-21-1)	Ceiling	49 mg/m3	
	MAK	10 ppm	
	Ceiling	20 ppm	
	MAK	26 mg/m3 52 mg/m3	

##### Belgium. Exposure Limit Values.

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	TWA	123 mg/m3	
		25 ppm	
Ethylene glycol (107-21-1)	STEL	104 mg/m3	Aerosol
	TWA	20 ppm	Aerosol
	STEL	40 ppm	Aerosol
	TWA	52 mg/m3	Aerosol

##### Czech Republic. OELs. Government Decree 361

Components	Type	Value	
Ethylene glycol (107-21-1)	Ceiling	100 mg/m3	
	TWA	50 mg/m3	

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

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	VLE	125 mg/m3	
Ethylene glycol (107-21-1)	VLE	25 ppm	
	VME	104 mg/m3	Vapor.
	VLE	20 ppm	Vapor.
	VME	40 ppm	Vapor.
		52 mg/m3	Vapor.

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Components	Type	Value	
2-Methylpentane-2,4-diol (107-41-5)	TWA	10 ppm	
Ethylene glycol (107-21-1)		49 mg/m3	
		10 ppm	
		26 mg/m3	

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

Components	Type	Value	
Ethylene glycol (107-21-1)	AGW	10 ppm	
		26 mg/m3	

**Greece. OELs (Decree No. 90/1999, as amended)**

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	STEL	125 mg/m3	
	TWA	125 mg/m3	
	STEL	25 ppm	
Ethylene glycol (107-21-1)	TWA	25 ppm	
	TWA	125 mg/m3	Vapor.
	STEL	125 mg/m3	Vapor.
	TWA	50 ppm	Vapor.
	STEL	50 ppm	Vapor.

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Components	Type	Value	
Ethylene glycol (107-21-1)	STEL	104 mg/m3	
	TWA	52 mg/m3	

**Italy. OELs**

Components	Type	Value	
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	25 ppm	
Ethylene glycol (107-21-1)	STEL	104 mg/m3	
	TWA	20 ppm	
	STEL	40 ppm	
	TWA	52 mg/m3	

**Netherlands. OELs (binding)**

Components	Type	Value	Form
Ethylene glycol (107-21-1)	TWA	10 mg/m3	Mist.
	STEL	104 mg/m3	Vapor.
	TWA	52 mg/m3	Vapor.

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

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	100 mg/m3	
Ethylene glycol (107-21-1)		20 ppm	
	TLV	10 mg/m3	Dust.
	Ceiling	25 ppm	Vapor.

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

Components	Type	Value	
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	120 mg/m3	
Ethylene glycol (107-21-1)	TWA	15 mg/m3	
	STEL	50 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
Ethylene glycol (107-21-1)	Ceiling	10 mg/m3	Vapor and aerosol.
	TWA	5 mg/m3	Vapor and aerosol.

**Spain. Occupational Exposure Limits**

Components	Type	Value
2-Methylpentane-2,4-diol (107-41-5)	STEL	123 mg/m3
Ethylene glycol (107-21-1)	STEL	25 ppm
	TWA	104 mg/m3
	TWA	20 ppm
	STEL	40 ppm
	TWA	52 mg/m3

**Sweden. Occupational Exposure Limit Values**

Components	Type	Value
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	120 mg/m3
Ethylene glycol (107-21-1)	TWA	25 ppm
	STEL	10 ppm
	TWA	20 ppm
	STEL	25 mg/m3
	STEL	50 mg/m3

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value
2-Methylpentane-2,4-diol (107-41-5)	TWA	10 ppm
	STEL	20 ppm
	TWA	49 mg/m3
	STEL	98 mg/m3
Ethylene glycol (107-21-1)	TWA	10 ppm
	STEL	20 ppm
	TWA	26 mg/m3
	STEL	52 mg/m3

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	TWA	123 mg/m3	
	STEL	123 mg/m3	
Ethylene glycol (107-21-1)	TWA	25 ppm	
	TWA	25 ppm	
	TWA	10 mg/m3	Particulate.
	STEL	104 mg/m3	Vapor.
	TWA	20 ppm	Vapor.
	STEL	40 ppm	Vapor.
	TWA	52 mg/m3	Vapor.

**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** Hand protection should be provided by gloves conforming to EN374. Suitable materials include Neoprene rubber and nitrile rubber with breakthrough times of up to 480 mins.

**- 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.

<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>	Dark brown.
<b>Odour</b>	Organic.
<b>Odour threshold</b>	Not available.
<b>pH</b>	6,5 - 7,5 at 20°C
<b>Melting point/freezing point</b>	-15 °C (5 °F)
<b>Boiling point, initial boiling point, and boiling range</b>	100 °C (212 °F) at 760 mmHg
<b>Flash point</b>	> 54 °C (> 129,2 °F)
<b>Auto-ignition temperature</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Not applicable.
<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>	1,09 at 20°C
<b>Solubility (water)</b>	Completely soluble in water.
<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>	Not available.
<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. Chlorine. Sulphur oxides. Metal oxides. Nitrogen oxides (NOx).

## 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.
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### Information on likely routes of exposure

<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Skin contact</b>	May cause skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	May cause eye irritation on direct contact.

**Symptoms** Skin sensitization, characterized by redness, inflammation, itching and/or burning may result from prolonged or repeated contact with this material.

### Information on toxicological effects

**Acute toxicity** May cause skin and eye irritation. May cause an allergic skin reaction.

<b>Components</b>	<b>Test results</b>
Ethylene glycol (107-21-1)	Acute Dermal LD50 Rabbit: 9530 mg/kg Acute Oral LD50 Rat: 5,89 g/kg
2-Methylpentane-2,4-diol (107-41-5)	Acute Oral LD50 Rat: 4,79 g/kg
<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause dermatitis.
<b>Serious eye damage/eye irritation</b>	May cause eye irritation.
<b>Respiratory sensitisation</b>	No data available.
<b>Skin sensitisation</b>	May cause an allergic skin reaction.
<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. May cause central nervous system effects. May cause damage to the kidneys.

## Section 12: Ecological information

### Toxicity

<b>Product</b>	<b>Test results</b>
Alcoseal 3/6 LT (Mixture)	EC50 Daphnia magna: 48200 ppm 2 Hours EC50 Daphnia magna: 14300 ppm 24 hours EC50 Daphnia magna: 13400 ppm 48 hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 4200 ppm 24 Hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 9100 ppm 3 Hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 4200 ppm 48 Hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 7500 ppm 6 Hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 4200 ppm 72 Hours LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 4200 ppm 96 Hours
<b>Components</b>	<b>Test results</b>
Ethylene glycol (107-21-1)	LC50 Fathead minnow (Pimephales promelas): 8050 mg/l 96 hours
2-Methylpentane-2,4-diol (107-41-5)	EC50 Water flea (Ceriodaphnia reticulata): 2400 - 3200 mg/l 48 hours LC50 Bleak (Alburnus alburnus): 7000 - 9100 mg/l 96 hours

<b>Persistence and degradability</b>	The product is biodegradable. COD: 0,52 gg-1. BOD: 0,19 gg-1 / 5 days. BOD: 0,23 gg-1/ 15 days. BOD: 0,36 gg-1/ 28 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** Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.

**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** HSDB® - Hazardous Substances Data Bank  
Registry of Toxic Effects of Chemical Substances (RTECS)

**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**  
R22 Harmful if swallowed.  
R36/38 Irritating to eyes and skin.  
R43 May cause sensitisation by skin contact.  
H302 - Harmful if swallowed.  
H315 - Causes skin irritation.  
H317 - May cause an allergic skin reaction.  
H319 - Causes serious eye 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.