

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

Trade name or designation of the mixture	Tankmaster
Registration number	-
Synonyms	None.
SDS number	-
Product code	40 - 20
Date of first issue	21-February-2011
Version number	03
Revision date	03-December-2014
Supersedes date	21-February-2011

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**

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

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

Health hazards		
Skin sensitisation	Category 1	May cause an allergic skin reaction.
Environmental hazards		
Hazardous to the aquatic environment - acute hazard	Category 1	
Hazardous to the aquatic environment - long-term hazard	Category 3	

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	May cause sensitisation by skin contact. 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 and eye irritation. May cause irritation of nose, throat and mucous membranes.
Main symptoms	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

Contains: 1,3,5-tris(2-hydroxyethyl)hexahydro-1,3,5-triazine



Signal word Warning

Hazard statements May cause an allergic skin reaction.

Precautionary statements

Prevention Avoid breathing mist/vapours/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves.

Response 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.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information None.

Other hazards 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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Sodium chloride	5 - < 10	7647-14-5 231-598-3	-	-	#
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Classification: **DSD:** -
CLP: -

2-Methylpentane-2,4-diol	3 - < 5	107-41-5 203-489-0	-	603-053-00-3	#
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Classification: **DSD:** Xi;R36/38
CLP: Skin Irrit. 2;H315, Eye Irrit. 2;H319

Ferrous sulphate	1 - < 3	7720-78-7 240-616-9	-	026-003-00-7	#
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Classification: **DSD:** Xn;R22, Xi;R36/38
CLP: Acute Tox. 4;H302, Skin Irrit. 2;H315, Eye Irrit. 2;H319

Zinc oxide	< 1	1314-13-2 215-222-5	-	030-013-00-7	#
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Classification: **DSD:** N;R50-53
CLP: Aquatic Chronic 1;H410

1,3,5-tris(2-hydroxyethyl)hexahydro-1,3,5-triazine	< 0,3	4719-04-4 225-208-0	-	613-114-00-6	
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Classification: **DSD:** Xn;R22, R43
CLP: Acute Tox. 4;H302, Skin Sens. 1;H317

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

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

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

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. If skin rash or an allergic skin reaction develops, get medical attention.
Eye contact	Immediately flush eye(s) with plenty of water. Remove any contact lenses. Get medical attention if irritation develops or 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	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

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	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	Form
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	10 ppm	

Austria. MAK List

Components	Type	Value	Form
Zinc oxide (1314-13-2)	MAK	49 mg/m ³	Fume and respirable dust.
		49 mg/m ³	
	10 ppm		
	5 mg/m ³		

Belgium. Exposure Limit Values.

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	TWA	25 ppm	
Ferrous sulphate (7720-78-7)	TWA	123 mg/m ³	
		1 mg/m ³	
Zinc oxide (1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	10 mg/m ³	Fume.
		5 mg/m ³	Fume.
		10 mg/m ³	Dust.
	2 mg/m ³	Respirable fraction.	

Czech Republic. OELs. Government Decree 361

Components	Type	Value	
Ferrous sulphate (7720-78-7)	TWA	10 mg/m ³	
Zinc oxide (1314-13-2)	Ceiling	5 mg/m ³	
	TWA	2 mg/m ³	

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/m ³	
Zinc oxide (1314-13-2)	VME	25 ppm	
		10 mg/m ³	Dust.
		5 mg/m ³	Fume.

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

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	STEL	125 mg/m ³	
	TWA	25 ppm	
		125 mg/m ³	
Ferrous sulphate (7720-78-7)	STEL	25 ppm	
		2 mg/m ³	
Zinc oxide (1314-13-2)	TWA	1 mg/m ³	
	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³	Fume.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Zinc oxide (1314-13-2)	STEL	20 mg/m ³	Respirable.
	TWA	5 mg/m ³	Respirable.

Italy. OELs

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	25 ppm	
Ferrous sulphate (7720-78-7)	TWA	1 mg/m ³	
Zinc oxide (1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 mg/m ³	Respirable fraction.

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	100 mg/m ³
Ferrous sulphate (7720-78-7)	TLV	20 ppm 1 mg/m ³
Zinc oxide (1314-13-2)	TLV	5 mg/m ³

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

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	120 mg/m ³	
Zinc oxide (1314-13-2)	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³	Fume.

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
Sodium chloride (7647-14-5)	Ceiling	5 mg/m ³	Aerosol
Zinc oxide (1314-13-2)	Ceiling	1,5 mg/m ³	Aerosol
	TWA	0,5 mg/m ³	Aerosol

Spain. Occupational Exposure Limits

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	STEL	25 ppm	
Ferrous sulphate (7720-78-7)	TWA	123 mg/m ³ 1 mg/m ³	
Zinc oxide (1314-13-2)	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³ 10 mg/m ³	Fume. Dust.

Sweden. Occupational Exposure Limit Values

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	Ceiling	25 ppm	
Zinc oxide (1314-13-2)	TWA	120 mg/m ³ 5 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
2-Methylpentane-2,4-diol (107-41-5)	STEL	20 ppm	
	TWA	98 mg/m ³ 49 mg/m ³ 10 ppm	
Ferrous sulphate (7720-78-7)	TWA	1 mg/m ³	Inhalable dust.
Zinc oxide (1314-13-2)	STEL	3 mg/m ³	Fume and respirable dust.
	TWA	3 mg/m ³	Fume and respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-Methylpentane-2,4-diol (107-41-5)	STEL	25 ppm
	TWA	123 mg/m ³ 123 mg/m ³ 25 ppm
Ferrous sulphate (7720-78-7)	STEL	2 mg/m ³
	TWA	1 mg/m ³

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	Dark brown.
Odour	Organic.
Odour threshold	Not available.
pH	7
Melting point/freezing point	-15 °C (5 °F)
Boiling point, initial boiling point, and boiling range	100 °C (212 °F) at 760mm Hg
Flash point	> 100 °C (> 212 °F)
Auto-ignition temperature	Not applicable.
Flammability (solid, gas)	Not applicable.
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	1,16 - 1,18
Solubility (water)	Miscible in all proportions.
Partition coefficient (n-octanol/water)	No data available.
Decomposition temperature	Not available.
Viscosity	30 cSt at 20 deg C
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. Chlorine. Sulphur oxides. Metal oxides. Nitrogen oxides (NOx).

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 cause discomfort if swallowed.

Inhalation Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Skin contact May cause skin irritation. May cause an allergic skin reaction.

Eye contact 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.

Components

2-Methylpentane-2,4-diol (107-41-5)

Ferrous sulphate (7720-78-7)

Test results

Acute Oral LD50 Rat: 4,79 g/kg

Acute Oral LD50 Rat: 319 mg/kg

Skin corrosion/irritation Prolonged skin contact may cause dermatitis.

Serious eye damage/eye irritation May cause eye irritation.

Respiratory sensitisation No data available.

Skin sensitisation May cause an allergic skin reaction.

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**

Tankmaster (Mixture)

Test results

LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*): > 10000 ppm 24 hours

LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*): > 10000 ppm 3 hours

LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*): > 10000 ppm 48 hours

Product	Test results
	LC50 Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>): > 10000 ppm 6 hours
	LC50 Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>): 5400 ppm 72 hours
	LC50 Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>): 4200 ppm 96 hours
Components	Test results
2-Methylpentane-2,4-diol (107-41-5)	EC50 Water flea (<i>Ceriodaphnia reticulata</i>): 2400 - 3200 mg/l 48 hours
	LC50 Bleak (<i>Alburnus alburnus</i>): 7000 - 9100 mg/l 96 hours
Zinc oxide (1314-13-2)	LC50 Water flea (<i>Daphnia magna</i>): 0,098 mg/l 48 Hours
Sodium chloride (7647-14-5)	EC50 Water flea (<i>Daphnia magna</i>): 340,7 - 469,2 mg/l 48 hours
	LC50 American eel (<i>Anguilla rostrata</i>): 0 - 27260 mg/l 96 hours
Ferrous sulphate (7720-78-7)	EC50 Water flea (<i>Daphnia magna</i>): 6,15 - 9,26 mg/l 48 hours
	LC50 Brook trout (<i>Salvelinus fontinalis</i>): 0,41 mg/l 96 hours

Persistence and degradability	The product is biodegradable.
Bioaccumulative potential	The product is not expected to bioaccumulate. COD: 0,65gg-1.
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	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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 Registry (EPER)

Sodium chloride (CAS 7647-14-5)

Zinc oxide (CAS 1314-13-2)

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
IUCLID
RTECS (2010)

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.
R50 Very toxic to aquatic organisms.
R53 May cause long-term adverse effects in the aquatic environment.
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H410 - Very toxic to aquatic life with long lasting effects.

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.