SAFETY DATA SHEET

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH) & 1272/2008 (CLP)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name:	Sentinel R500
Chemical Name:	Mixture. (aqueous solution)
CAS No.:	-
EC No.:	-

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

Identified use(s):	Heat transfer fluid for ground source heat pump circuits.

1.3 Details of the supplier of the safety data sheet

Company Identification:	SENTINEL PERFORMANCE SOLUTIONS LTD The Heath Business & Technical Park Runcorn Cheshire WA7 4QX United Kingdom
Telephone:	+44 (0) 1928 588 330 (office hours, Monday - Friday)
Fax:	+44 (0) 01928 588 368
E-Mail (competent person):	info.uk@sentinel-solutions.net

1.4 Emergency telephone number

Emergency Phone No. (24 h):	+44 (0) 1928 588 339 (24 hours/ 7 days)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

According to Regulation (EC) No. 1272/2008 (CLP)

Not classified.

According to Directive 67/548/EEC & Directive 1999/45/EC

Not classified.

2.2.1 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)

Hazard pictogram(s):	None.
Signal word(s):	None.
Hazard statement(s):	None.
Precautionary statement(s):	None.
Supplemental Hazard Information:	None.

2.2.2 Label elements

According to Directive 67/548/EEC & Directive 1999/45/EC

Hazard pictogram(s):	None.
Hazard Symbol:	None.
Risk Phrases:	None.
Safety Phrases:	S2: Keep out of the reach of children. S24/25: Avoid contact with skin and eyes. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28: After contact with skin, wash immediately with plenty of soap and water.

2.3 Other hazards

May cause eye irritation. Repeated and/or prolonged skin contact may cause irritation. Ingestion may cause irritation of the gastrointestinal tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

EC Classification No. 1272/2008

Hazardous ingredient(s)	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard symbol(s) and hazard statement(s)
Propane-1,2-diol	25-50	57-55-6	200-338-0	-	-

EC Classification No. 67/548/EEC

Hazardous ingredient(s)	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Symbol and Risk Phrases
Propane-1,2-diol	25-50	57-55-6	200-338-0	-	-

(aqueous solution)

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: Remove patient from exposure, keep warm and at rest. If symptoms persist, obtain medical attention.

Skin Contact: Remove contaminated clothing immediately and drench affected skin with plenty of water, then wash with soap and water. If symptoms persist, obtain medical attention. Contaminated clothing should be thoroughly cleaned.

Eye Contact: If substance has got into the eyes, immediately wash out with plenty of water for at least 15 minutes. If symptoms persist, obtain medical attention.

Ingestion: Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. If symptoms persist, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause eye irritation. Repeated and/or prolonged skin contact may cause irritation. Ingestion may cause irritation of the gastrointestinal tract.

4.3 Indication of the immediate medical attention and special treatment needed

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media: Water spray, foam, dry powder or CO2

Unsuitable Extinguishing Media: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

May give off toxic fumes in a fire. Carbon monoxide, Carbon dioxide, Alcohols and Ether.

5.3 Advice for fire-fighters

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep fire exposed containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Ensure adequate ventilation. Avoid contact with skin and eyes. Avoid inhalation of vapours. Wear suitable protective clothing and gloves. (See Section: 8). Contaminated clothing should be thoroughly cleaned.
6.2	**Environmental precautions**	Large spillages: Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
6.3	**Methods and material for containment and cleaning up**	Adsorb spillages onto sand, earth or any suitable adsorbent material. Wash spill area with soapy water.
6.4	**Reference to other sections**	Personal Protection: See Section: 8.
	Other advice	None.

7. HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Ensure adequate ventilation. Avoid inhalation of vapours. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves. (See Section: 8). Do not eat, drink or smoke at the work place. Wash hands and exposed skin after use. Contaminated clothing should be thoroughly cleaned.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep away from heat and sources of ignition. Keep from direct sunlight. Keep away from frost. Keep only in the original container in a cool, well-ventilated place.
7.3	**Specific end use(s)**	Heat transfer fluid for ground source heat pump circuits.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters — Source: Workplace Exposure Limit (UK HSE EH40)

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note:
Propane-1,2-diol	57-55-6					-
total vapour and particulates		150	474	-	-	
particulates		-	10	-	-	

8.2 Exposure controls

8.2.1 Appropriate engineering controls — Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved.

8.2.2 Personal Protection

Eye/face protection — Goggles giving complete protection to eyes. (EN 166)

Skin protection — Protective gloves. Nitrile rubber. (EN 374)

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Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. (EN 141)

Other:	Apron or other light protective clothing, boots and plastic or rubber gloves.
8.2.3 Environmental Exposure Controls	Avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Liquid. (aqueous solution)
Colour:	Blue.
pH (Value):	8.2-8.8 (20 ^{o}C)
Specific Gravity:	1.025-1.029 g/cm^3 (25 ^{o}C)
Solubility (Water):	Soluble.
9.2 Other information	No data.

10. STABILITY AND REACTIVITY

10.1	**Reactivity**	No information available.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	No information available.
10.4	**Conditions to avoid**	Keep away from heat, sources of ignition and direct sunlight.
10.5	**Incompatible materials**	Strong oxidising agents. Acids. Alkalis.
10.6	**Hazardous Decomposition Product(s)**	May give off toxic fumes in a fire. Carbon monoxide, Carbon dioxide, Alcohols and Ether.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Ingestion:	LD_{50} (oral/rat): 20,000 mg/kg
Inhalation:	No information available.
Skin Contact:	No information available.
Eye Contact:	No information available.

Hazard label(s):	Repeated and/or prolonged skin contact may cause irritation.
Serious eye damage/irritation:	May cause eye irritation.
respiratory or skin sensitization:	No information available.
Mutagenicity:	No information available.
Carcinogenicity:	No information available.
Reproductive toxicity:	No information available.
STOT-single exposure:	No information available.
STOT-repeated exposure:	No information available.
Aspiration hazard:	No information available.
Other information:	No information available.

SAFETY DATA SHEET

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH) & 1272/2008 (CLP)

12. ECOLOGICAL INFORMATION

12.1	**Toxicity**	LC_{50} (Rainbow trout): > 44,000 mg/l/96h. EC_{50} (Daphnia magna): > 4,850 mg/l/48h. IC_{50} (Algae): 19,000 mg/l/72h. WGK: 1
12.2	**Persistence and degradability**	Readily biodegradable. 28 Days.> 80%
12.3	**Bioaccumulative potential**	No information available.
12.4	**Mobility in soil**	Mobile liquid.
12.5	**Results of PBT and vPvB assessment**	No information available.
12.6	**Other adverse effects**	No information available.

13. DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Disposal should be in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION

14.1	**UN number**	Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.
14.2	**Proper Shipping Name**	None.
14.3	**Transport hazard class(es)**	None.
14.4	**Packing Group**	None.
14.5	**Environmental hazards**	Not classified as a Marine Pollutant.
14.6	**Special precautions for user**	None.
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15. REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	This Safety Data Sheet was prepared in accordance with EC Regulation (EC) No. 1907/2006., Regulation (EC) No. 1272/2008 (CLP), Directive 67/548/EEC & Directive 1999/45/EC.
15.1	**Chemical Safety Assessment**	-

16. OTHER INFORMATION

Full text of Hazard statements and Risk phrases for pure substances listed in section 3.

Hazard Symbol: None.
Risk Phrases: None.

The following sections contain revisions or new statements: 1-16.

Abbreviations:
CAS = Chemical Abstracts Service;
CNS = Central Nervous System;
EINECS = European Inventory of Existing Commercial Chemical Substances;
EC50 = Effective Concentration 50%;
IARC = International Agency for Research on Cancer;
IC50 = Inhibitory Concentration 50%;
LC50 = Lethal Concentration 50%;
LD50 = Lethal Dose 50%;

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LTEL = Long Term Exposure Limit;
STEL = Short Term Exposure Limit;
TWA = Time Weighted Average;

References:

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