SAFETY DATA SHEET

Issuing Date 01-06-17 **Revision Date** 30-05-17 **Version** 2.2

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Sentinel X100 Rapid-Dose
Pure substance/mixture Mixture.

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

Recommended Use Corrosion and Scale Inhibitor for Central Heating Systems.

Uses advised against None known.

1.3 Details of the supplier of the safety data sheet

Company Information SENTINEL PERFORMANCE SOLUTIONS LTD

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E-mail Address info.uk@sentinel-solutions.net

1.4 Emergency telephone

Emergency telephone +44 (0) 1928 704 339 (24 hours/ 7 days)

Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Not classified

2.2 Label elements

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

Signal Word
None

Hazard Statements
None

Precautionary statements
None

Additional Labeling
Special labelling for aerosols: Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.

2.3 Other hazards

May cause skin and eye irritation. Ingestion may cause irritation of the gastrointestinal tract.

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical Name	EC-No	CAS-No	w/w%	Classification (EU Reg. 1272/2008)	REACH Registration Number
Potassium tetraborate tetrahydrate	215-575-5	12045-78-2	1-10	*	no data available
Disodium molybdate	231-551-7	7631-95-0	1-5	*	01-2119489495-21-XXXX
Sodium Nitrate	231-554-3	7631-99-4	1-5	Ox. Sol. 3 (H272) Acute Tox. 4 (H302)	01-2119488221-41-XXXX
2,2',2''-nitrilotriethanol	203-049-8	102-71-6	1-10	*	01-2119486482-31-XXXX
Benzotriazole	202-394-1	95-14-7	1-3	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Aquatic Chronic 3 (H412)	01-2119979079-20-XXXX

For the full text of H-Statements see Section 16

* Substance with Workplace Exposure Limit. See Section 8.

Section 4: FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms develop obtain medical attention.

Skin contact Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. If symptoms develop obtain medical attention.

Ingestion Do NOT induce vomiting. Wash out mouth with water and give 100 - 200 ml of water to drink. If symptoms develop obtain medical attention.

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

4.2 Most important symptoms and effects, both acute and delayed

Main Symptoms May cause skin and eye irritation. Ingestion may cause irritation of the gastrointestinal tract.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media
Water spray, Foam, Dry powder, Carbon dioxide (CO_2).

Extinguishing media which shall not be used for safety reasons
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Exposure to heat may cause bursting of the aerosol containers. Thermal decomposition can lead to release of irritating and toxic gases and vapors: Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx), Phosphorus oxides.

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus and full protective gear. Cool containers / tanks with water spray.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid contact with the skin and the eyes. Avoid inhalation of mists or vapor. Use personal protective equipment.

6.2 Environmental precautions

Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Physically collect containers. In case of liquid spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

6.4 Reference to other sections

SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.

Section 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use.

Do not eat, drink or smoke during work. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in the original container/package in a cool well-ventilated place below 50 °C. Keep away from heat and sources of ignition. Keep away from direct sunlight. Protect from frost.

7.3 Specific end use(s)

Corrosion and Scale Inhibitor for Central Heating Systems.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Chemical Name	**Potassium tetraborate tetrahydrate 12045-78-2**
Spain	TWA: 2 mg/m^3
Chemical Name	**Disodium molybdate 7631-95-0**
The United Kingdom	TWA: 5 mg/m^3
France	TWA: 5 mg/m^3 STEL: 10 mg/m^3
Spain	TWA: 0.5 mg/m^3
Portugal	TWA: 0.5 mg/m^3
Finland	TWA: 0.5 mg/m^3
Denmark	TWA: 5 mg/m^3
Austria	STEL 10 mg/m^3 TWA: 5 mg/m^3
Switzerland	TWA: 5 mg/m^3
Poland	STEL: 10 mg/m^3 TWA: 4 mg/m^3
Norway	TWA: 5 mg/m^3 STEL: 10 mg/m^3
Ireland	TWA: 10 mg/m^3 TWA: 0.5 mg/m^3
Chemical Name	**2,2',2''-nitrilotriethanol 102-71-6**

Spain	TWA: 5 mg/m^3
Germany	TWA: 5 mg/m^3 Ceiling / Peak: 20 mg/m^3
Portugal	TWA: 5 mg/m^3
Finland	TWA: 5 mg/m^3
Denmark	TWA: 0.5 ppm TWA: 3.1 mg/m^3
Austria	STEL 1.6 ppm STEL 10 mg/m^3 TWA: 0.8 ppm TWA: 5 mg/m^3
Switzerland	STEL: 20 mg/m^3 TWA: 5 mg/m^3
Norway	TWA: 5 mg/m^3 STEL: 10 mg/m^3
Ireland	TWA: 5 mg/m^3

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2 Exposure controls

Appropriate engineering controls Provide adequate ventilation, including appropriate local extraction, to ensure that occupational exposure limits are not exceeded.

Personal protective equipment

Eye Protection	Goggles (EN 166)
Hand Protection	Protective gloves (EN 374)
Skin and body protection	Long sleeved clothing
Respiratory protection	Not normally required. In case of insufficient ventilation wear suitable respiratory equipment

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls Avoid release to the environment

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aerosol can containing: Aqueous solution
Odor	Characteristic
Color	Yellow. Amber
Odor Threshold	No information available

Property	Values	Remarks • Methods
pH	6.4	@ 25 °C
Melting/freezing point	-13 °C	
Freezing Point		No information available
Boiling point/boiling range	104 °C	(at 760 mm Hg)
Flash Point		Not flammable
Evaporation rate		No information available
Flammability (solid, gas)		Not applicable
Flammability Limits in Air		Not flammable
upper flammability limit		
lower flammability limit		
Vapor pressure		No information available
Vapor density		No information available
Relative density	1.26	@ 25 °C

Water solubility	Miscible
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Auto-ignition temperature	Not flammable
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available

Explosive properties	Not explosive
Oxidizing properties	Not oxidizing

9.2 Other information

No information available

Section 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

No information available.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors: Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx), Phosphorous oxides.

Section 11: TOXICOLOGICAL INFORMATION

Inhalation	No known effect based on information supplied.
Eye contact	May cause eye irritation.
Skin contact	May cause skin irritation.
Ingestion	Ingestion may cause irritation of the gastrointestinal tract.

11.1 Information on toxicological effects

Acute toxicity

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Disodium molybdate	4g/kg (Rat)	-	>2080 mg/m^3 (Rat) 4 h
Sodium Nitrate	1267mg/kg (Rat)	-	-
2,2',2"-nitrilotriethanol	4190mg/kg (Rat)	>2000 mg/kg (Rabbit) >16 mL/kg (Rat)	-
Benzotriazole	560mg/kg (Rat)	>1 g/kg (Rat)	-

Sentinel X100 Rapid-Dose

Skin corrosion/irritation Based on available data, classification criteria are not met.

Serious eye damage/irritation Based on available data, classification criteria are not met.

Respiratory or skin sensitisation Based on available data, classification criteria are not met.

Mutagenicity Based on available data, classification criteria are not met.

Carcinogenicity Based on available data, classification criteria are not met.

Chemical Name	European Union	IARC
Sodium Nitrate	-	Group 2A
2,2',2"-nitrilotriethanol	-	Group 3

Reproductive toxicity Based on available data, classification criteria are not met.

STOT - Single exposure Based on available data, classification criteria are not met.

STOT - Repeated exposure Based on available data, classification criteria are not met.

Aspiration hazard Based on available data, classification criteria are not met.

Other information No information available.

Section 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
2,2',2"-nitrilotriethanol	EC50: 216 mg/L 72 h (Desmodesmus subspicatus) EC50: 169 mg/L 96 h (Desmodesmus subspicatus)	LC50: >1000 mg/L 96 h static (Pimephales promelas)	EC50: 1386 mg/L 24 h (Daphnia magna)
Benzotriazole	EC50: 15.4 mg/L 96 h (freshwater algae)	-	EC50: 141.6 mg/L 48 h (water flea)

WGK Classification 1

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

Chemical Name	Bioconcentration factor (BCF)	log Pow
Sodium Nitrate	-	-3.8
2,2',2"-nitrilotriethanol	<3.9	-2.53

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from residues / unused products Disposal should be in accordance with local, state or national legislation.

Contaminated packaging Clean container with water. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14: TRANSPORT INFORMATION

	ADR/RID/ADN	ICAO/IATA	IMDG / IMO
14.1 UN Number	1950	1950	1950
14.2 UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS
14.3 Transport hazard class(es)	2	2	2
14.4 Packing group	N/A	N/A	N/A
14.5 Environmental Hazards	None	None	None
14.6 Special precautions for user		None	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code		N/A	

Modal information:

Land transport: ADR

Proper Shipping Name:	AEROSOLS
Transport - Hazard label(s):	2.2 Non-flammable, non-toxic , Gas
ADR/RID Class:	2
Packing Group:	Not applicable.
HIN:	None.
EAC:	None.
Limited Quantity:	1 litre

Sea transport: IMDG

Proper Shipping Name:	AEROSOLS
Transport - Hazard label(s):	2.2 Non-flammable, non-toxic , Gas
IMO-IMDG Class:	2
Packing Group:	Not applicable.
EmS:	F-D, S-U
Marine Pollutant:	No.
Limited Quantity:	1 litre

Air transport: ICAO/IATA

Proper Shipping Name:	AEROSOLS, Non-flammable
Transport - Hazard label(s):	2.2 Non-flammable, non-toxic , Gas
ICAO/IATA Class:	2
Packing Group:	Not applicable.
ERG:	2L
Packing instruction (cargo aircraft):	Y203, 203
Packing instruction (passenger aircraft):	Y203, 203
Max. Net qty/ package:	Packing instruction (cargo aircraft): 150 kg Packing instruction (passenger aircraft): 75 kg (30 kg non-UN Packaging.)

Sentinel X100 Rapid-Dose

Limited Quantity: 1 litre

Section 15: REGULATORY INFORMATION

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

This safety data sheet complies with the requirements of Regulations (EC) No. 1907/2006 and No. 453/2010

WGK Classification 1

15.2 Chemical Safety Assessment

Chemical Safety Assessment has not been carried out.

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H412 - Harmful to aquatic life with long lasting effects

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Revision Note All sections.

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