



SAFETY DATA SHEET

Issuing Date 01-Dec-2010

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Version 2.1

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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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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Not classified

2.2 Label elements

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

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 (67/548/EEC)	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	O; R8 Xn; R22	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	Xn; R20/22 Xi; R36 R52/53	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 R-phrases and 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.
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4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.
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Section 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media

Water spray, Foam, Dry powder, Carbon dioxide (CO₂).

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 (CO₂), Nitrogen oxides (NO_x), 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

Sentinel X100 Rapid-Dose

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

pH	6.4
Melting/freezing point	-13 °C
Freezing Point	
Boiling point/boiling range	104 °C
Flash Point	
Evaporation rate	
Flammability (solid, gas)	
Flammability Limits in Air	
upper flammability limit	
lower flammability limit	
Vapor pressure	
Vapor density	
Relative density	1.22

Remarks • Methods

@ 25 °C

No information available
(at 760 mm Hg)

Not flammable

No information available

Not applicable

Not flammable

No information available

No information available

@ 25 °C

Sentinel X100 Rapid-Dose

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 (CO₂), Nitrogen oxides (NO_x), 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''-nitrioltriethanol	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''-nitrioltriethanol	-	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''-nitrioltriethanol	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''-nitrioltriethanol	<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 R-phrases referred to under sections 2 and 3

R8 - Contact with combustible material may cause fire

R22 - Harmful if swallowed

R20/22 - Harmful by inhalation and if swallowed

R36 - Irritating to eyes

R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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.

Disclaimer

The information and recommendations contained herein are based upon data believed to be up-to-date and correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information and recommendations contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by (incorrect) use, handling, purchase, resale, or exposure to our product. Customers and users of our product must comply with all applicable health and safety laws, regulations, and orders. In particular, they are under an obligation to carry out a risk assessment for the particular work places and to take adequate risk management measures in accordance with the national implementation legislation of EU Directives 89/391 and 98/24.