



# SAFETY DATA SHEET

Issuing Date 01-Dec-2010

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Version 2.3

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

### 1.1 Product identifier

**Product name** Sentinel X100  
**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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Warrington  
Cheshire  
WA4 4BS  
United Kingdom

**Telephone** +44 (0) 1928 704 330

**Fax** +44 (0) 1928 562 070

For further information, please contact:

**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

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

**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	1-5	-	*	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	1-3	O; R8 Xn; R22	Ox. Sol. 3 (H272) Acute Tox. 4 (H302)	01-2119488221-41
2,2',2"-nitrioltriethanol	203-049-8	102-71-6	1-10	-	*	01-2119486482-31-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

<b>Eye contact</b>	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.
<b>Skin contact</b>	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. If symptoms develop obtain medical attention.
<b>Ingestion</b>	Do NOT induce vomiting. Wash out mouth with water and give 100 - 200 ml of water to drink. If symptoms develop obtain medical attention.
<b>Inhalation</b>	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

<b>Main Symptoms</b>	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

<b>Notes to physician</b>	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 (CO<sub>2</sub>).

#### **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

Thermal decomposition can lead to release of irritating and toxic gases and vapors: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), 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

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. 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 <sup>3</sup>
Chemical Name	Disodium molybdate 7631-95-0
The United Kingdom	TWA: 5 mg/m <sup>3</sup>
France	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>
Spain	TWA: 0.5 mg/m <sup>3</sup>
Portugal	TWA: 0.5 mg/m <sup>3</sup>
Finland	TWA: 0.5 mg/m <sup>3</sup>
Denmark	TWA: 5 mg/m <sup>3</sup>
Austria	STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>
Switzerland	TWA: 5 mg/m <sup>3</sup>
Poland	STEL: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>
Norway	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>
Ireland	TWA: 10 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup>
Chemical Name	2,2',2''-nitrioltriethanol 102-71-6
Spain	TWA: 5 mg/m <sup>3</sup>

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

**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**

<b>Eye Protection</b>	Goggles (EN 166)
<b>Hand Protection</b>	Protective gloves (EN 374)
<b>Skin and body protection</b>	Long sleeved clothing
<b>Respiratory protection</b>	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

<b>Physical state</b>	Liquid	
<b>Appearance</b>	Aqueous solution	
<b>Odor</b>	Barely perceptible	
<b>Color</b>	Clear, pale yellow or amber*	
<b>Odor Threshold</b>	No information available	
	* the colour of the product has no impact on efficacy	
<b>Property Values</b>		<b>Remarks • Methods</b>
<b>pH</b>	6.4	@ 25 °C
<b>Melting/freezing point</b>	-2.5 °C	
<b>Freezing Point</b>		No information available
<b>Boiling point/boiling range</b>	104 °C	(at 760 mm Hg)
<b>Flash Point</b>		Not flammable
<b>Evaporation rate</b>		No information available
<b>Flammability (solid, gas)</b>		Not applicable
<b>Flammability Limits in Air</b>		Not flammable
<b>upper flammability limit</b>		
<b>lower flammability limit</b>		
<b>Vapor pressure</b>		No information available
<b>Vapor density</b>		No information available
<b>Relative density</b>	1.10	@ 25 °C
<b>Water solubility</b>		Miscible

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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<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), 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 <sup>3</sup> ( Rat ) 4 h
Sodium Nitrate	1267mg/kg (Rat)	-	-
2,2',2"-nitritotriethanol	4190mg/kg (Rat)	>2000 mg/kg ( Rabbit ) >16 mL/kg ( Rat )	-

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

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**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''-nitritotriethanol	-	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''-nitritotriethanol	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)

WGK Classification 1

### 12.2 Persistence and degradability

Readily biodegradable.

### 12.3 Bioaccumulative potential

Does not bioaccumulate.

Chemical Name	Bioconcentration factor (BCF)	log Pow
Sodium Nitrate	-	-3.8
2,2',2''-nitritotriethanol	<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

<b>Waste from residues / unused products</b>	Disposal should be in accordance with local, state or national legislation.
<b>Contaminated packaging</b>	Clean container with water. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## Section 14: TRANSPORT INFORMATION

Not classified as hazardous for transport.

	ADR/RID/ADN	ICAO/IATA	IMDG / IMO
<b>14.1 UN Number</b>	-	-	-
<b>14.2 UN proper shipping name</b>	-	-	-
<b>14.3 Transport hazard class(es)</b>	-	-	-
<b>14.4 Packing group</b>	-	-	-
<b>14.5 Environmental Hazards</b>	Not Classified	Not Classified	Not Classified
<b>14.6 Special precautions for user</b>	No special precautions are needed in handling this material		
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>		-	

## 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

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

H272 - May intensify fire; oxidizer  
H302 - Harmful if swallowed

<b>Issuing Date</b>	01-Dec-2010
<b>Revision Date</b>	02-Jul-2013
<b>Revision Note</b>	All sections.

## Sentinel X100

### 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.