1. PRODUCT AND COMPANY INFORMATION

Identification of the substance/preparation
Sentinel X100

Use of the substance/preparation
Scale & corrosion inhibitor for central heating systems

Company Identification
Sentinel Performance Solutions Ltd.

Manufactured by
Douglas Products and Packaging

Address and Telephone No.
1550 East Old 210 Highway
Liberty
Missouri, 64068
USA

Telephone for further information:
(816)-781-4250 (8am - 5pm)

Emergency Phone No.
Chemtrec (800) 424-9300 (24/7)
(816)-781-1043

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance and odour:
Appearance Colourless to yellow liquid
Odour Mild odour

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Statements of Hazard
CAUTION: MAY BE HARMFUL IF SWALLOWED Xn - Harmful
MAY CAUSE SKIN, EYE AND RESPIRATORY TRACT IRRITATION

Potential Health Effects
Primary routes of entry by skin contact and ingestion.

Contains ingredients that may be harmful by inhalation and if swallowed and may be irritating to skin, eyes and the respiratory system. Also contains an oxidising ingredient.

Consideration of the hazards of the mixture as supplied suggest that the potential health effects will actually be less dangerous.

Eye contact - prolonged or repeated exposure may cause transient irritation. Skin contact - prolonged or repeated exposure may cause transient irritation. Inhalation - prolonged or repeated exposure may cause transient irritation. Ingestion of large amounts may cause slight gastrointestinal irritation.
3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical description
Neutral solution of inorganic and organic corrosion inhibitors and salts.

Hazardous component(s)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>% by weight</th>
<th>Symbol</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrate</td>
<td>7631-99-4</td>
<td>231-554-3</td>
<td>&lt; 5</td>
<td>O</td>
<td>8-22-36/37/38</td>
</tr>
<tr>
<td>Sodium molybdate</td>
<td>7631-95-0</td>
<td>231-551-7</td>
<td>&lt; 5</td>
<td>None</td>
<td>None - has PEL &amp; TLV</td>
</tr>
</tbody>
</table>

Please refer to section 16 (R phrases used in Section 3), where the full text of each relevant R phrase is listed.

4. FIRST-AID MEASURES

Inhalation
Remove patient to fresh air, allow to rest and keep warm. Seek medical attention if symptoms develop.

Skin contact
Wash with plenty of water. Remove any contaminated clothing and launder before reuse. Seek medical attention if symptoms develop.

Eye contact
Flush immediately with plenty of water for at least 15 minutes, keeping eyelids open. Seek medical attention if symptoms develop.

Ingestion
DO NOT induce vomiting! Rinse mouth out with water, but do not give anything to drink. Seek medical attention if symptoms develop.

Personal precautions
Ensure that those giving first aid treatment do not get contaminated by product spills, etc. Wear suitable protective clothing, gloves and eye protection. See also Section 8.

5. FIRE-FIGHTING MEASURES

- Suitable
  Water, foam, carbon dioxide, dry powder.

- Not to be used
  None.

Special exposure hazards
Oxides of carbon and nitrogen evolved in fire.

Special protective equipment for fire fighters
Protective clothing and self-contained breathing apparatus.

Flash point
Not flammable.
## 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Precaution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal precautions</strong></td>
<td>Wear suitable protective clothing, gloves and eye protection. See Section 8 for details. Keep unnecessary personnel away.</td>
</tr>
<tr>
<td><strong>Environmental precautions</strong></td>
<td>Prevent from entering sewers or the immediate environment. Accidental release of large quantities into the aquatic environment may harm aquatic organisms. In case of large spill, inform local authorities.</td>
</tr>
</tbody>
</table>

### Methods for cleaning up
- **on soil** Absorb onto inert material such as earth, soil or specialist absorbent. Collect and place into sealed container for safe disposal (see Section 13).
- **on water** None known.

## 7. HANDLING AND STORAGE

<table>
<thead>
<tr>
<th>Handling</th>
<th>Avoid contact with skin and eyes. Do not ingest or inhale vapours or spray.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>Keep in original containers. Keep container tightly closed. Store in cool, well ventilated area.</td>
</tr>
</tbody>
</table>

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| Control parameters: | Molybdenum compounds (as Mo) soluble  
| OSHA PEL - 5 mg/m³ 8 hr TWA  
| ACGIH TLV - 5 mg/m³ 8 hr TWA |
|---------------------|---------------------------------------------------------------------|
| Monitoring procedures | Not required                                                             |

| Personal protection | In case of insufficient ventilation, wear full face or half face mask fitted with filter suitable for liquid particulates.  
| Skin protection     | Laboratory coat or overalls if splashing or repeated contact with product is likely.  
| Eye protection      | Chemical goggles or full face visor.  
| Hand protection     | Plastic, impervious gloves for protection against unintentional short-term contact. However, since glove performance is governed by many variables, it is strongly recommend that specialist advice on the selection and use of protective gloves is sought. |
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Colourless to yellow liquid

Odour
Mild

pH (concentrated product)
6.4

Melting point (°C)
Approx 0 [32°F]

Boiling point/range (°C)
Approx 100 [212°F]

Flash point (Pensky Martens) (°C)
Not flammable

Explosive properties
None

Oxidising properties
None

Density at 20°C (kg/m³)
1103

Solubility in water (% by weight)
Completely miscible

Note: These are typical values and do not constitute a specification.

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions of use.

Conditions to avoid
Protect from freezing.

Materials to avoid
None known.

Hazardous decomposition products
Oxides of carbon and nitrogen evolved in fire.

11. TOXICOLOGICAL INFORMATION

Test data:
No data available on product.

Calculated from ingredient data:
Oral LD50 rat (mg/kg) > 2000 Not considered hazardous in EU.

Exposure hazard:
- Inhalation
  Prolonged or repeated exposure may cause transient irritation.

- Skin contact
  Prolonged or repeated exposure may cause transient irritation.

- Eye contact
  Prolonged or repeated exposure may cause transient irritation.

- Ingestion
  Likely symptoms are slight gastrointestinal irritation.

Other data
None available.
12. ECOLOGICAL INFORMATION

Aquatic toxicity:
- No data available on product.
  - Fathead minnow (mg/l) LC$_{50}$ 96 Hr: 3680
    NOEL : 1680
  - Daphnia Magna (mg/l) LC50 48 Hr: 4080
    NOEL : 2100

Persistence and degradability
- COD (mgO$_2$/g) 150 (calculated data)
- BOD 5 (mgO$_2$/g) 0 (calculated data)
- BOD 28 (mgO$_2$/g) 1 (calculated data)
- Closed Bottle Test (% Degradation in 28 days) 2 (calculated data)
- TOC (mg C/g) 50 (calculated data)

Bioaccumulative potential
- Bioaccumulation Not bioaccumulating
(Refers to active component Sodium molybdate)

Summary
Environmental effects: Not classified as hazardous to the environment under the EU classification system.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

14. TRANSPORTATION INFORMATION

Not classified as dangerous for transport.

15. REGULATORY INFORMATION

The label shows CAUTION. Keep Out of Reach of Children. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.

Names of the ingredients given on the label: Sodium molybdate and Sodium nitrate.

R phrases: R22, Harmful if swallowed; R36/37/38, Irritating to skin, eyes and respiratory tract.
S 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 water.

Inventory Status
TSCA  All ingredients of this product are listed unless specifically exempted.

California Proposition 65  Does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

EU  All ingredients of this product are listed in EINECS or ELINCS, unless specifically exempted under EU Directive 67/548/EEC (as amended).

Right to know classification:  None are listed in CA, PA, MN, MA, MI, FL and NJ.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user’s attention is drawn to the possible existence of additional provisions, which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Hazardous Material Information (HMIS)</th>
<th>National Fire Protection Association (NFPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>G</td>
</tr>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Dangerous</td>
<td>2</td>
</tr>
<tr>
<td>Slight hazard</td>
<td>1</td>
</tr>
<tr>
<td>No hazard</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>4 &lt; 73 ºC</td>
</tr>
<tr>
<td>3 &lt; 100 ºC</td>
<td>2 &lt; 200 ºC</td>
</tr>
<tr>
<td>1 &gt;200 ºC</td>
<td>0 Will not burn</td>
</tr>
<tr>
<td>Reactivity/Instability</td>
<td>4 May detonate</td>
</tr>
<tr>
<td>Explosive</td>
<td>2 Unstable</td>
</tr>
<tr>
<td>Normally stable</td>
<td>1 Stable</td>
</tr>
</tbody>
</table>

EU labelling information

- Symbol(s)  None required
- R-Phrase(s)  None assigned
- S-Phrase(s)  2 Keep out of the reach of children
              24/25 Avoid contact with skin and eyes
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

After contact with skin, wash immediately with plenty of water.

Contact with combustible material may cause fire.

Harmful if swallowed.

Irritating to eyes, respiratory system and skin.

Based on ANSI Z400.1/Z129.1-2010 and EU Regulation 1907/2006.