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

Product Name: SO-2230

Other means of identification:
Product Code: 255
Synonyms: None

Recommended use of the chemical and restrictions on use:
Recommended Use: Oxygen scavenger.
Uses advised against: No information available

Emergency telephone number:
Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification:
Serious eye damage/eye irritation: Category 1

Label elements:

Emergency Overview

Danger
Hazard statements
Causes serious eye damage

Appearance: aqueous solution, Physical state: liquid, Odor: Odorless

Precautionary Statements - Prevention
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing immediately call a POISON CENTER or doctor/physician

Hazard not otherwise classified (HNOC)
Other Information:
• May be harmful if swallowed
Unknown Acute Toxicity: 7.25% of the mixture consists of ingredient(s) of unknown toxicity
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite</td>
<td>7681-57-4</td>
<td>22.75</td>
<td></td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

**First aid measures**

**Eye contact**
Flush immediately with water for 15 minutes. Lift upper and lower eyelids for complete rinsing. Get immediate medical attention.

**Skin Contact**
Flush with water for 15 minutes. If irritation persists after rinsing, get medical attention. Remove contaminated clothing and wash before reuse.

**Inhalation**
Remove victim to fresh air. If breathing difficulty occurs or persists, get medical attention.

**Ingestion**
Rinse mouth with water. Give water to dilute. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to a semi-comatose, comatose, convulsing or unconscious person.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**
Inhalation: May cause irritation. If product is improperly used, under acidic conditions, can release sulfur dioxide gas, which is toxic and in extreme cases, can cause death. Eye: May irritation/burns. Skin: May cause irritation. Ingestion: Oral exposure or swallowing may produce gastrointestinal upset, CNS depression, nausea or vomiting. Ingestion may be fatal. Sulfite sensitive individuals may experience a severe allergic reaction.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians**
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**
None known.

**Specific hazards arising from the chemical**
Thermal decomposition products may be hazardous. These include toxic and corrosive fumes of sulfur dioxide and sodium oxide.

**Explosion data**

<table>
<thead>
<tr>
<th>Sensitivity to Mechanical Impact</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity to Static Discharge</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**
Evacuate nonessential personnel. Ventilate area. Wear appropriate personal protection equipment.
Environmental precautions  
See Section 12 for additional ecological information.

Methods for containment  
Completely contain spilled material with dikes or sand bags, etc.

Methods for cleaning up  
Recover as much material as possible into containers for reuse or disposal. Remaining material may be flushed with water. Wash spill area with water.

### 7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling  
Do not get in eyes, on skin, or clothing. Do not breathe vapors or mists. Do not ingest. Wash thoroughly after handling. Wear protective clothing/equipment. Use with adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage Conditions  
Keep containers tightly closed and properly labeled. Containers that have been emptied will retain product residue and should be handled as if they were full. Store in a cool, dry, well-ventilated place away from incompatible materials. Wash hands before eating, drinking, using tobacco, applying make-up or using the toilet. Do not store, use, and/or consume foods, beverages, tobacco in areas where this product is stored.

Incompatible materials  
Acids, oxidizers (chlorine, oxygen, permanganates, perchlorates, percarbonates, peroxides, chromates, hypochlorites, nitric acid and sulfuric acid).

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines  

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV (TWA)</th>
<th>OSHA PEL (TWA)</th>
<th>NIOSH IDLH (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite</td>
<td>5 mg/m³</td>
<td>(vacated) 5 mg/m³</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

Appropriate engineering controls  

Showers  
Eyewash stations  
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection  
Wear protective splash proof safety goggles. Additional full face protection is recommended if splashing is a possibility.

Skin and body protection  
For prolonged or repeated exposures, use impervious clothing (boots, gloves, aprons, etc.) over parts of the body subject to exposure.

Respiratory protection  
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

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

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Physical state: liquid
Appearance: aqueous solution
Color: clear light orange

Odor: Odorless
Odor threshold: No information available

Property | Values | Remarks • Method
--- | --- | ---
pH | 6.6 | No information available
Melting point/freezing point | No information available | No information available
Boiling point / boiling range | No information available | No information available
Flash point | No information available | No information available
Evaporation rate | No information available | No information available
Flammability (solid, gas) | No information available | No information available
Flammability Limit in Air
Upper flammability limit: | No information available | No information available
Lower flammability limit: | No information available | No information available
Vapor pressure | No information available | No information available
Vapor density | No information available | No information available
Specific Gravity | No information available 1.270 | No information available
Water solubility | Soluble in water | No information available
Solubility in other solvents | No information available | No information available
Partition coefficient | No information available | No information available
Autoignition temperature | No information available | No information available
Decomposition temperature | No information available | No information available
Kinematic viscosity | No information available | No information available
Dynamic viscosity | No information available | No information available
Explosive properties | No information available | No information available
Oxidizing properties | No information available | No information available

Other Information
Softening point | No information available |  
Molecular weight | No information available |  
VOC Content (%) | No information available |  
Density | No information available |  
Bulk density | No information available |  

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
None known.

Incompatible materials
Acids, oxidizers (chlorine, oxygen, permanganates, perchlorates, percarbonates, peroxides, chromates, hypochlorites, nitric acid and sulfuric acid).

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Releases sulfur dioxide at extremely high temperatures. Toxic fumes of sodium oxide. Carbon monoxide. Carbon dioxide (CO2).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Product Information

Inhalation
Sulfite sensitive individuals may experience a severe allergic reaction.

Eye contact
Irritating to eyes.

Skin Contact
Irritating to skin.

Ingestion
No data available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite  7681-57-4</td>
<td>= 1131 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization
No information available.

Germ cell mutagenicity
No information available.

Carcinogenicity
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite 7681-57-4</td>
<td>-</td>
<td>Group 3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Reproductive toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity
7.25% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document.

12. ECOLOGICAL INFORMATION

Ecotoxicity

7.25% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite 7681-57-4</td>
<td>48: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>32: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>89: 24 h Daphnia magna Straus mg/L EC50</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite 7681-57-4</td>
<td>-3.7</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container.

14. TRANSPORT INFORMATION

DOT

Not regulated

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Complies/Does not comply</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)
CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium metabisulfite 7681-57-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not Applicable

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties -</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health hazards</td>
<td>Flammability</td>
<td></td>
<td>Physical hazards</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Prepared By lmt
Issue Date 26-Nov-2014
Revision Date 26-Nov-2014
Revision Note No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet