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

**Product identifier**
- **Product Name**: Trimethylamine N-oxide
- **Product Code**: SC-253763

**Recommended use of the chemical and restrictions on use**
For research use only. Not intended for diagnostic or therapeutic use.

**Details of the supplier of the safety data sheet**
Santa Cruz Biotechnology, Inc.
10410 Finnell Street
Dallas, TX 75220
831.457.3800
800.457.3801
scbt@scbt.com

**Emergency telephone number**
Chemtrec
1.800.424.9300 (Within USA)
+1.703.527.3887 (Outside USA)

2. HAZARDS IDENTIFICATION

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification**
- Skin corrosion/irritation: Category 2
- Serious eye damage/eye irritation: Category 2A
- Specific target organ toxicity (single exposure): Category 3

**Label elements**
- **Signal word**: Warning
- **Hazard statements**:
  - Causes skin irritation
  - Causes serious eye irritation
  - May cause respiratory irritation

**Precautionary Statements - Prevention**
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/protective clothing/eye protection/face protection
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- IF exposed or concerned: Get medical advice/attention

**Precautionary Statements - Response**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF eye irritation persists: Get medical advice/attention
- IF ON SKIN: Wash with plenty of soap and water
- IF skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Call a POISON CENTER or doctor/physician if you feel unwell
Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)
Hazard not otherwise classified (HNOC)
Not applicable

Other Information
Unknown acute toxicity
100% of the mixture consists of ingredient(s) of unknown toxicity.

NFPA
Health hazards 2
Flammability 0
Stability 0
Physical and chemical properties -

HMIS
Health hazards 2
Flammability 0
Physical hazards 0
Personal protection -

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS No 1184-78-7
Molecular Weight 75.11
Formula C3H9NO

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight %</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylamine N-oxide</td>
<td>1184-78-7</td>
<td>&gt;98</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures
General advice Consult a physician if necessary. Remove to fresh air.
Eye contact Wash with plenty of water.
Skin Contact Wash skin with soap and water.
Inhalation Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.
Ingestion Never give anything by mouth to an unconscious person. Clean mouth with water.

Most important symptoms and effects, both acute and delayed
Symptoms No information available.

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.

Specific hazards arising from the chemical
Specific hazards arising from the chemical No information available.
Hazardous combustion products Carbon oxides. Nitrogen oxides (NOx).
Explosion data
Sensitivity to Mechanical Impact: No information available.
Sensitivity to Static Discharge: No information available.

Protective equipment and precautions for firefighters
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: Ensure adequate ventilation, especially in confined areas.

Environmental precautions
Environmental precautions: See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up
Methods for containment: Prevent further leakage or spillage if safe to do so.
Methods for cleaning up: Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling: Corrosive hazard. Wear protective gloves/clothing and eye/face protection.

Conditions for safe storage, including any incompatibilities
Storage Conditions: Protect from moisture. Desiccate at room temperature.
Incompatible materials: None known based on information supplied.

8. EXPOSURE CONTROLS/PERSOAL PROTECTION

Control parameters
Exposure Guidelines: This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls
Engineering Controls: Showers, Eyewash stations, Ventilation systems

Individual protection measures, such as personal protective equipment
Eye/face protection: Wear safety glasses with side shields (or goggles).
Skin and Body Protection: Wear protective gloves and protective clothing.
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

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>powder or crystalline</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>349.89 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper flammability limits</td>
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<tr>
<td>Lower flammability limit</td>
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<tr>
<td>Vapor pressure</td>
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<tr>
<td>Vapor density</td>
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<tr>
<td>Specific gravity</td>
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</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

- Reactivity: Not applicable
- Chemical stability: Stable under recommended storage conditions.
- Possibility of Hazardous Reactions: None under normal processing.
- Hazardous polymerization: No information available.
- Conditions to avoid: Exposure to air or moisture over prolonged periods.
- Incompatible materials: Strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

- Information on likely routes of exposure:
  - Inhalation: No data available.
  - Eye contact: No data available.
  - Skin Contact: No data available.
  - Ingestion: No data available.

- Information on toxicological effects:
  - Symptoms: No information available.

- Delayed and immediate effects as well as chronic effects from short and long-term exposure:
  - Chronic Toxicity: No information available.

- Numerical measures of toxicity - Product Information:
  - Unknown acute toxicity: 100% of the mixture consists of ingredient(s) of unknown toxicity
12. ECOLOGICAL INFORMATION

Ecotoxicity
May cause long lasting harmful effects to aquatic life

Persistence and degradability
No information available.

Bioaccumulation
No information available.

Mobility
No information available.

13. DISPOSAL CONSIDERATIONS

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

IMDG
Not regulated

IATA
Not regulated

15. REGULATORY INFORMATION

International Inventories
All of the components in the product are on the following Inventory lists
TSCA (United States): Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) Philippines (PICCS)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
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</thead>
<tbody>
<tr>
<td>Trimethylamine N-oxide</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

X - Listed

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

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
Acute health hazard
No
Chronic Health Hazard
No
Fire hazard
No
Sudden release of pressure hazard  No
Reactive hazard  No

**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).

**US State Regulations**

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

**U.S. State Right-to-Know Regulations**
This product does not contain any substances regulated by state right-to-know regulations

**16. OTHER INFORMATION**

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**