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

<table>
<thead>
<tr>
<th>Product identifier</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name</td>
<td>5-Hydroxymethyl-2-furaldehyde</td>
</tr>
<tr>
<td>Product Code</td>
<td>SC-210345</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended use of the chemical and restrictions on use</th>
</tr>
</thead>
<tbody>
<tr>
<td>For research use only. Not intended for diagnostic or therapeutic use.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of the supplier of the safety data sheet</th>
<th>Emergency telephone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Cruz Biotechnology, Inc.</td>
<td>Chemtrec</td>
</tr>
<tr>
<td>10410 Finnell Street, Dallas, TX 75220</td>
<td>1.800.424.9300 (Within USA)</td>
</tr>
<tr>
<td>831.457.3800</td>
<td>+1.703.527.3887 (Outside USA)</td>
</tr>
<tr>
<td>800.457.3801</td>
<td><a href="mailto:scbt@scbt.com">scbt@scbt.com</a></td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

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

<table>
<thead>
<tr>
<th>Classification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Label elements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal word</td>
<td>Warning</td>
</tr>
<tr>
<td>Hazard statements</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td></td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td></td>
<td>May cause respiratory irritation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbols/Pictograms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary Statements - Prevention</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash face, hands and any exposed skin thoroughly after handling</td>
<td></td>
</tr>
<tr>
<td>Wear protective gloves/protective clothing/eye protection/face protection</td>
<td></td>
</tr>
<tr>
<td>Avoid breathing dust/fume/gas/mist/vapors/spray</td>
<td></td>
</tr>
<tr>
<td>Use only outdoors or in a well-ventilated area</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary Statements - Response</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IF exposed or concerned: Get medical advice/attention</td>
<td></td>
</tr>
<tr>
<td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing</td>
<td></td>
</tr>
<tr>
<td>IF eye irritation persists: Get medical advice/attention</td>
<td></td>
</tr>
<tr>
<td>IF ON SKIN: Wash with plenty of soap and water</td>
<td></td>
</tr>
<tr>
<td>IF skin irritation occurs: Get medical advice/attention</td>
<td></td>
</tr>
<tr>
<td>Take off contaminated clothing and wash before reuse</td>
<td></td>
</tr>
<tr>
<td>IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing</td>
<td></td>
</tr>
<tr>
<td>Call a POISON CENTER or doctor/physician if you feel unwell</td>
<td></td>
</tr>
</tbody>
</table>
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)
Hazards not otherwise classified (HNOC) Not applicable

Other Information

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>2</th>
<th>HMIS</th>
<th>Health hazards</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flammability</td>
<td>2</td>
<td></td>
<td>Flammability</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stability</td>
<td>0</td>
<td></td>
<td>Physical hazards</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Physical and chemical properties</td>
<td>-</td>
<td></td>
<td>Personal protection</td>
<td>-</td>
</tr>
</tbody>
</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Molecular Weight</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-47-0</td>
<td>126.11</td>
<td>C₆H₆O₃</td>
</tr>
</tbody>
</table>

<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>5-Hydroxymethyl-2-furaldehyde</td>
<td>67-47-0</td>
<td>&gt;98</td>
<td>= 2500 mg/kg (Rat)</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.
- None.

Specific hazards arising from the chemical

- No information available.
- Carbon oxides.
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 Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store at -20 °C.
Incompatible materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL 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
Physical State: Low-Melting Solid
Appearance: No information available
Odor: No information available

Property | Values
---|---
pH | No information available
Melting point/freezing point | 32 °C
Boiling point | 114 °C
Flash point | 79 °C CC (closed cup)
Density | 1.24 g/cm³
Evaporation rate | No information available
Upper flammability limits | No information available
Lower flammability limit | No information available
Vapor pressure | No information available
Vapor density | No information available
Specific gravity | No information available
Water solubility | No information available
Solubility in other solvents | No information available
Partition coefficient | No information available
Autoignition temperature | No information available
Decomposition temperature | No information available
Kinematic viscosity | No information available
Explosive properties | No information available
Oxidizing properties | No information available

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: Extremes of temperature and direct sunlight.
Incompatible materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon oxides.

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: No information available
The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral): 2500 mg/kg

Santa Cruz Biotechnology, Inc.  www.scbt.com
12. ECOLOGICAL INFORMATION

Ecotoxicity
May cause long lasting harmful effects to aquatic life

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

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) Australia (AICS) South Korea (KECL): China (IECSC) 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>
</tr>
</thead>
<tbody>
<tr>
<td>5-Hydroxymethyl-2-furaldehyde</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</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  Yes
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