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

Product identifier
Product Name  4-Hydroxybenzaldehyde
Product Code  SC-256775

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

Symbols/Pictograms

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

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
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)

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

NFPA Health hazards 2 Flammability 1 Stability 0 Physical and chemical properties -

HMIS Health hazards 2 Flammability 1 Physical hazards 0 Personal protection -

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Molar Weight</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-08-0</td>
<td>122.12</td>
<td>C7H6O2</td>
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</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>
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<tbody>
<tr>
<td>4-Hydroxybenzaldehyde</td>
<td>123-08-0</td>
<td>&gt;98</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures

General advice
If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin Contact
Consult a physician if necessary. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water. Immediate medical attention is not required. If skin irritation persists, call a physician.

Inhalation
Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Call a physician. Artificial respiration and/or oxygen may be necessary. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

Ingestion
Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician. Rinse mouth. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

Self-protection of the first aider
Use personal protective equipment as required.

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
May cause sensitization of susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
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
In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous combustion products
Carbon oxides.

Explosion data
Sensitivity to Mechanical Impact
No information available.
Sensitivity to Static Discharge
No information available.

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
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions
Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. 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. Soak up with inert absorbent material. Dam up. Pick up and transfer to properly labeled containers. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water. Take precautionary measures against static discharges.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling
Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Use with local exhaust ventilation.

Conditions for safe storage, including any incompatibilities
Storage Conditions
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Store at 4 °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
Tight sealing safety goggles. Face protection shield.
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
When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

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>
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<tr>
<td>Appearance</td>
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<tr>
<td>Odor</td>
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<tr>
<td>pH</td>
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</tr>
<tr>
<td>Melting point/freezing point</td>
<td>112 °C</td>
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<tr>
<td>Boiling point</td>
<td>191 °C</td>
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<tr>
<td>Flash point</td>
<td>174 °C</td>
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<tr>
<td>Density</td>
<td>1.13 g/cm³</td>
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<tr>
<td>Evaporation rate</td>
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</tr>
<tr>
<td>Upper flammability limits</td>
<td>No information available</td>
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<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
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<tr>
<td>Vapor pressure</td>
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</tr>
<tr>
<td>Vapor density</td>
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<tr>
<td>Specific gravity</td>
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<tr>
<td>Water solubility</td>
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</tr>
<tr>
<td>Solubility in other solvents</td>
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<tr>
<td>Partition coefficient</td>
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<tr>
<td>Autoignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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<tr>
<td>Kinematic viscosity</td>
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</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
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<tr>
<td>Oxidizing properties</td>
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</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
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</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not applicable</td>
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<tr>
<td>Chemical stability</td>
<td>Stable under recommended storage conditions.</td>
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<tr>
<td>Possibility of Hazardous Reactions</td>
<td>None under normal processing.</td>
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<tr>
<td>Hazardous polymerization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Extremes of temperature and direct sunlight.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Strong oxidizing agents.</td>
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<tr>
<td>Hazardous Decomposition Products</td>
<td>Carbon oxides.</td>
</tr>
</tbody>
</table>
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  
Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure.

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

12. ECOLOGICAL INFORMATION

Ecotoxicity  
May cause long lasting harmful effects to aquatic life
100% 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.
Other Information  
Waste codes should be assigned by the user based on the application for which the product was used.

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)
ENCS (Japan): 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>
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<th>KECL</th>
<th>PICCS</th>
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<tbody>
<tr>
<td>4-Hydroxybenzaldehyde</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</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: Yes
- 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