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

**Product identifier**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Ethyl pyruvate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Code</td>
<td>SC-257508</td>
</tr>
</tbody>
</table>

**Recommended use of the chemical and restrictions on use**

For research use only. Not intended for diagnostic or therapeutic use.

2. HAZARDS IDENTIFICATION

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

**Classification**

- Flammable liquids: Category 3

**Label elements**

- Signal word: Warning
- Hazard statements: FLAMMABLE LIQUID AND VAPOR
- Symbols/Pictograms: 🔥

**Precautionary Statements - Prevention**

- Keep away from heat/sparks/open flames/hot surfaces. — No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
In case of fire: Use CO2, dry chemical, or foam for extinction
Store in a well-ventilated place. Keep cool
Dispose of contents/container to an approved waste disposal plant

**Precautionary Statements - Storage**

**Precautionary Statements - Disposal**

**Hazards not otherwise classified (HNOC)**

- Not applicable

**Other Information**

Santa Cruz Biotechnology, Inc. www.scbt.com
3. COMPOSITION/INFORMATION ON INGREDIENTS

<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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</thead>
<tbody>
<tr>
<td>Ethyl pyruvate</td>
<td>617-35-6</td>
<td>&gt;98</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures

General advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If symptoms persist, call a physician.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician. 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.

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

Inhalation
Remove to fresh air. If symptoms persist, call a physician. Artificial respiration and/or oxygen may be necessary. Call a physician. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors.

Ingestion
Immediate medical attention is not required. Rinse mouth. Drink plenty of water. Do NOT induce vomiting. 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
Remove all sources of ignition. 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
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.
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  Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

Environmental precautions
Environmental precautions  Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. 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. Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling  Ensure adequate ventilation, especially in confined areas. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Use with local exhaust ventilation. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities
Storage Conditions  Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. May form explosive peroxides. 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>liquid</td>
</tr>
<tr>
<td>Appearance</td>
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</tr>
<tr>
<td>Odor</td>
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</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-58 °C</td>
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<tr>
<td>Boiling point</td>
<td>144 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>46 °C CC (closed cup)</td>
</tr>
<tr>
<td>Density</td>
<td>1.05 g/mL</td>
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<tr>
<td>Evaporation rate</td>
<td>No information available</td>
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<tr>
<td>Upper flammability limits</td>
<td>10.8%</td>
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<tr>
<td>Lower flammability limit</td>
<td>1.6%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>3.09</td>
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<tr>
<td>Vapor density</td>
<td>4.0</td>
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<tr>
<td>Specific gravity</td>
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<tr>
<td>Water solubility</td>
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<tr>
<td>Solubility in other solvents</td>
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</tr>
<tr>
<td>Partition coefficient</td>
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<tr>
<td>Autoignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
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<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**: May form explosive peroxides.
- **Possibility of Hazardous Reactions**: None under normal processing.
- **Hazardous polymerization**: No information available.
- **Conditions to avoid**: Heat, flames and sparks.
- **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: Avoid repeated exposure.

**Numerical measures of toxicity - Product Information**
Unknown acute toxicity: No information available

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**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.

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**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.

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**14. TRANSPORT INFORMATION**

**DOT**
UN/ID no: UN3272
Hazard Class: 3
Packing Group: III
Proper shipping name: Esters, n.o.s.
Description: UN3272, Esters, n.o.s., 3, III
Emergency Response Guide Number: 127

**IMDG**
UN/ID no: UN3272
Hazard Class: 3
Packing Group: III
Proper shipping name: Esters, n.o.s.
Description: UN3272, Esters, n.o.s. (Ethyl pyruvate), 3, III, (46°C c.c.)
Special Provisions: 223, 274
EmS-No: F-E, S-D

**IATA**
SC-257508 - Ethyl pyruvate
Revision date: 23-Feb-2015
UN/ID no UN3272
Hazard Class 3
Packing Group III
Proper shipping name Esters, n.o.s.
Description UN3272, Esters, n.o.s. (Ethyl pyruvate), 3, III

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>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl pyruvate</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>
<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 Yes
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