Material Safety Data Sheet
Date Printed: 06/23/2000
Date Updated: 10/20/1999
Version 1.0

Section 1 - Product and Company Information

Product Name: PROPIONALDEHYDE
Product Number: P6889
Brand: Sigma Chemical

Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: St. Louis, MO, 63103, US
Technical Phone: 314 771 5765
Fax: 800 325 5052

Emergency Phone: 414 273 3850 Ext.5996

Section 2 - Composition/Information on Ingredient

Substance Name: PROPIONALDEHYDE
CAS #: 123-38-6

Formula: C3H6O
Synonyms: Aldehyde propionique (French), Methylacetaldehyde, NCI-C61029, Propaldehyde, Propanal, Proplionic aldehyde, Propyl aldehyde, Propylc aldehyde

Section 3 - Hazards Identification

Emergency Overview
Flammable (USA) Highly Flammable (EU). Corrosive.
Causes burns. Harmful by inhalation, in contact with skin and if swallowed.
Stench May develop pressure.

HMIS Rating
Health: 3
Flammability: 3
Reactivity: 2

NFPA Ratings
Flammability: 3
Reactivity: 2

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
Eye Exposure
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Explosion Hazards
Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air.

Flash Point: -104 °F -40 °C
Explosion Limits: Lower: 2.6 %
Autoignition Temp: 207 °C Flammability: N/A

Extinguishing Media
Suitable
Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)
Emits toxic fumes under fire conditions.

Exposure Hazard(s)
Material
Corrosive.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area. Shut off all sources of ignition.

Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Open carefully.

Storage
Suitable
Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Use nonsparking tools.

Personal Protective Equipment
Other
Wear appropriate NIOSH/MSHA-approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

General Hygiene Measures
Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

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Section 9 - Physical/Chemical Properties

**Appearance**
- **Color**: Colorless
- **Form**: Clear liquid

**Molecular Weight**: 58.08 AMU

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>BP/BP Range</td>
<td>47 - 49 °C</td>
<td></td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>-81 °C</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
<td>258 mmHg</td>
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</tr>
<tr>
<td>Vapor Density</td>
<td>2 g/l</td>
<td>20 °C</td>
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<tr>
<td>Saturated Vapor Conc.</td>
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<tr>
<td>SG/Density</td>
<td>0.798 g/cm³</td>
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<tr>
<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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</tr>
<tr>
<td>Volatile%</td>
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<td></td>
</tr>
<tr>
<td>VOC Content</td>
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<td></td>
</tr>
<tr>
<td>Water Content</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solvent Content</td>
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<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
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<td></td>
</tr>
<tr>
<td>Viscosity</td>
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</tr>
<tr>
<td>Partition Coefficient</td>
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<td></td>
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<td>Decomposition Temp.</td>
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<tr>
<td>Flash Point °F</td>
<td>-104 °F</td>
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<tr>
<td>Flash Point °C</td>
<td>-40 °C</td>
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<tr>
<td>Explosion Limits</td>
<td>Lower: 2.6 %</td>
<td>31 °C</td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>207 °C</td>
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</tr>
<tr>
<td>Refractive Index</td>
<td>1.362</td>
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<tr>
<td>Solubility</td>
<td>N/A</td>
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</tbody>
</table>

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Section 10 - Stability and Reactivity

**Stability**
- Stable
- Stable.

**Materials to Avoid**
- Oxidizing agents, Strong bases, Strong reducing agents.

**Hazardous Decomposition Products**
- Carbon monoxide, Carbon dioxide.

**Hazardous Polymerization**
- Will not occur.
Section 11 - Toxicological Information

Route of Exposure

Skin Contact
Causes burns.

Eye Contact
Causes burns.

Multiple Routes
Harmful if swallowed, inhaled, or absorbed through skin.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: Nausea, dizziness, and headache.

RTECS Number: UE0350000

Toxicity Data

Oral - Rat: 1,410 mg/kg (LD50)

Intraperitoneal - Rat: 200 MG/KG (LD50)
Remarks: Behavioral: General anesthetic.
Behavioral: Muscle weakness.

Subcutaneous - Rat: 820 MG/KG (LD50)
Remarks: Behavioral: General anesthetic.
Behavioral: Convulsions or effect on seizure threshold.

Inhalation - Mouse: 21,800 mg/m3 (LC50)

Intraperitoneal - Mouse: 200 MG/KG (LD50)
Remarks: Behavioral: General anesthetic.
Behavioral: Somnolence (general depressed activity).
Lungs, Thorax, or Respiration: Respiratory depression.

Subcutaneous - Mouse: 680 MG/KG (LD50)
Remarks: Behavioral: General anesthetic.
Behavioral: Convulsions or effect on seizure threshold.

Skin - Rabbit: 2,460 mg/kg (LD50)
Behavioral: Convulsions or effect on seizure threshold.
Lungs, Thorax, or Respiration: Dyspnea.

Skin - Guinea pig: 10 ML/KG (LD50)
Remarks: Skin and Appendages: Skin: After systemic exposure: Dermatitis, other

Oral - Mammal: 1,400 mg/kg (LD50)

Inhalation - Mammal: 21,800 mg/m3 (LC50)

Irritation Data

Skin - Rabbit: 500 mg
Remarks: Open irritation test

Eyes - Rabbit: 41 mg
Remarks: Severe irritation effect

Eyes - Rabbit: 20 mg 24H
Remarks: Moderate irritation effect
Chronic Exposure - Mutagen

<table>
<thead>
<tr>
<th>Species</th>
<th>Dose</th>
<th>Cell Type</th>
<th>Mutation Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>30 UMOL/L</td>
<td>liver</td>
<td>Unscheduled DNA synthesis</td>
</tr>
<tr>
<td>Hamster</td>
<td>10 MMOL/L</td>
<td>lung</td>
<td>Mutation in mammalian somatic cells.</td>
</tr>
<tr>
<td>Mammal</td>
<td>100 MMOL/L</td>
<td>lymphocyte</td>
<td>DNA damage</td>
</tr>
</tbody>
</table>

Section 12 - Ecological Information

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Propionaldehyde
UN#: 1275
Class: 3
Packing Group: Packing Group II
PIH: Not PIH

IATA
Proper Shipping Name: Propionaldehyde
IATA Number: 1275
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU Directives Classification
Symbol of Danger: F Xi
Indication of Danger
Highly Flammable. Irritant.
Risk Statements
R: 11 36/37/38
Highly flammable. Irritating to eyes, respiratory system, and skin.
Safety Statements
S: 9 16 29
Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains.

US Classification and Label Text
Indication of Danger
Flammable (USA) Highly Flammable (EU). Corrosive.
Risk Statements
Causes burns. Harmful by inhalation, in contact with skin and if swallowed.
Safety Statements
Keep away from sources of ignition - no smoking. Keep container tightly closed in a cool well-ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.
US Statements
Stench May develop pressure.
Handling and Storage
Open carefully. Store under nitrogen. Refrigerate.

United States Regulatory Information
SARA 313 Listed: Yes
Deminimis: 1 %
Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes
Section 16 - Other Information

Warranty
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 1999 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.