1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Propionaldehyde
Product Number : W292303
Brand : Aldrich
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Target Organ Effect, Harmful by ingestion., Irritant

Target Organs
Liver

Other hazards which do not result in classification
Stench.

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 5)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Specific target organ toxicity - single exposure (Category 3), Respiratory system
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 + H332 Harmful if swallowed or if inhaled
H313 May be harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H402 Harmful to aquatic life.
Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 3
- Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 3
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
- Skin Harmful if absorbed through skin. Causes skin irritation.
- Eyes Causes eye irritation.
- Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Propanal, Aldehyde C-3

Formula: C₃H₆O
Molecular Weight: 58.08 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>Propanal</td>
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<tr>
<td>CAS-No.</td>
<td>123-38-6</td>
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<td>EC-No.</td>
<td>204-623-0</td>
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<td>Index-No.</td>
<td>605-018-00-8</td>
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</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended container temperature: 2 - 8 °C

Handle and open container with care. Handle and store under inert gas. Air and moisture sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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<tr>
<td>Propanal</td>
<td>123-38-6</td>
<td>TWA</td>
<td>20 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td>TWA</td>
<td>20 ppm</td>
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Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 343 min
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: clear, liquid
Colour: colourless

Safety data
pH: no data available
Melting point/freezing point: Melting point/range: -81 °C (-114 °F) - lit.
Boiling point: 46 - 50 °C (115 - 122 °F) - lit.
Flash point: -40 °C (-40 °F) - closed cup
Ignition temperature: 175 °C (347 °F)
Auto-ignition temperature: no data available
Lower explosion limit: 2.6 %(V)
Upper explosion limit: 16.1 %(V)
Vapour pressure: 343 hPa (257 mmHg) at 20 °C (68 °F)
Density: 0.805 g/cm³ at 25 °C (77 °F)
Water solubility: completely soluble
Partition coefficient: n-octanol/water
log Pow: 0.83
Relative vapour density: 2.01 - (Air = 1.0)
Odour: Stench.
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Oxidizing agents, Strong bases, Strong reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 1,690 mg/kg

Inhalation LC50
LC50 Inhalation - rat - 4 h - > 4.6 mg/l

Dermal LD50
LD50 Dermal - rabbit - 2,460 mg/kg

Other information on acute toxicity
no data available

Skin corrosion/irritation
Irritating to skin.

Serious eye damage/eye irritation
Eyes - rabbit - Risk of serious damage to eyes. - OECD Test Guideline 405

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
Genotoxicity in vitro - in vitro assay - Other cell types - positive DNA damage
Genotoxicity in vivo - mouse - In vivo tests did not show any chromosomal changes.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available
Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects
- Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
- Ingestion: Harmful if swallowed.
- Skin: Harmful if absorbed through skin. Causes skin irritation.
- Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

Synergistic effects
no data available

Additional Information
RTECS: UE0350000

12. ECOLOGICAL INFORMATION

Toxicity
- Toxicity to fish: LC50 - Pimephales promelas (fathead minnow) - 14 mg/l - 96 h

Persistence and degradability
- Biodegradability: Result: - Readily biodegradable.

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.
no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
- UN number: 1275
- Class: 3
- Packing group: II
- Proper shipping name: Propionaldehyde
- Reportable Quantity (RQ):
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1275  
Class: 3  
Packing group: II  
EMS-No: F-E, S-D

Proper shipping name: PROPIONALDEHYDE  
Marine pollutant: No

### IATA

UN number: 1275  
Class: 3  
Packing group: II

Proper shipping name: Propionaldehyde

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15. REGULATORY INFORMATION

**OSHA Hazards**
Flammable liquid, Target Organ Effect, Harmful by ingestion., Irritant

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

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**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

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**Pennsylvania Right To Know Components**

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**New Jersey Right To Know Components**

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**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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16. OTHER INFORMATION

**Further information**
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