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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Valeraldehyde

Product Number : 110132

Brand : Aldrich

CAS-No. : 110-62-3

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225

Acute toxicity, Inhalation (Category 4), H332

Eye irritation (Category 2A), H319

Skin sensitisation (Category 1), H317

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Acute aquatic toxicity (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapour.

H317

May cause an allergic skin reaction.

H319

Causes serious eye irritation.

H332

Harmful if inhaled.

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.

P233

Keep container tightly closed.

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P240               | Ground/bond container and receiving equipment.                                                                                   |
| P241               | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                                |
| P242               | Use only non-sparking tools.                                                                                                     |
| P243               | Take precautionary measures against static discharge.                                                                            |
| P261               | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.                                                                           |
| P264               | Wash skin thoroughly after handling.                                                                                             |
| P271               | Use only outdoors or in a well-ventilated area.                                                                                  |
| P272               | Contaminated work clothing should not be allowed out of the workplace.                                                           |
| P273               | Avoid release to the environment.                                                                                                |
| P280               | Wear protective gloves/ eye protection/ face protection.                                                                         |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.                              |
| P304 + P340 + P312 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.       |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P333 + P313        | If skin irritation or rash occurs: Get medical advice/ attention.                                                                |
| P337 + P313        | If eye irritation persists: Get medical advice/ attention.                                                                       |
| P363               | Wash contaminated clothing before reuse.                                                                                         |
| P370 + P378        | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                                             |
| P403 + P233        | Store in a well-ventilated place. Keep container tightly closed.                                                                 |
| P403 + P235        | Store in a well-ventilated place. Keep cool.                                                                                     |
| P405               | Store locked up.                                                                                                                 |
| P501               | Dispose of contents/ container to an approved waste disposal plant.                                                              |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Stench.  
Stench.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |   |                                  |
|------------------|---|----------------------------------|
| Synonyms         | : | Pentanal                         |
| Formula          | : | C <sub>5</sub> H <sub>10</sub> O |
| Molecular weight | : | 86.13 g/mol                      |
| CAS-No.          | : | 110-62-3                         |
| EC-No.           | : | 203-784-4                        |

#### Hazardous components

| Component            | Classification                                                                                                          | Concentration |
|----------------------|-------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Valeraldehyde</b> |                                                                                                                         |               |
|                      | Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Skin Sens. 1; STOT SE 3; Aquatic Acute 3; H225, H317, H319, H332, H335, H402 | 90 - 100 %    |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of 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.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

No data available

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

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.

For personal protection see section 8.

**6.2 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.

**6.3 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).

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 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.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

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.

Store under inert gas.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

| Component     | CAS-No.  | Value                                                                   | Control parameters                | Basis                                                                                   |
|---------------|----------|-------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------|
| Valeraldehyde | 110-62-3 | TWA                                                                     | 50 ppm                            | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|               | Remarks  | Upper Respiratory Tract irritation<br>Eye irritation<br>Skin irritation |                                   |                                                                                         |
|               |          | TWA                                                                     | 50.000000 ppm                     | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|               |          | Upper Respiratory Tract irritation<br>Eye irritation<br>Skin irritation |                                   |                                                                                         |
|               |          | TWA                                                                     | 50.000000 ppm<br>175.000000 mg/m3 | USA. NIOSH Recommended Exposure Limits                                                  |
|               |          | See Appendix C                                                          |                                   |                                                                                         |
|               |          | PEL                                                                     | 50 ppm<br>175 mg/m3               | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

### 8.2 Exposure controls

#### Appropriate engineering controls

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

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin 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: 30 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.

##### 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.

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (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).

**Control of environmental exposure**

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

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**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

|                                                 |                                                                    |
|-------------------------------------------------|--------------------------------------------------------------------|
| a) Appearance                                   | Form: clear, liquid<br>Colour: colourless                          |
| b) Odour                                        | Stench.                                                            |
| c) Odour Threshold                              | No data available                                                  |
| d) pH                                           | No data available                                                  |
| e) Melting point/freezing point                 | Melting point/range: -92 °C (-134 °F) - lit.                       |
| f) Initial boiling point and boiling range      | 102 - 103 °C (216 - 217 °F) - lit.                                 |
| g) Flash point                                  | 4 °C (39 °F) - closed cup                                          |
| h) Evaporation rate                             | No data available                                                  |
| i) Flammability (solid, gas)                    | No data available                                                  |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 6.8 %(V)<br>Lower explosion limit: 1.7 %(V) |
| k) Vapour pressure                              | 50 hPa (38 mmHg) at 20 °C (68 °F)                                  |
| l) Vapour density                               | No data available                                                  |
| m) Relative density                             | 0.81 g/cm <sup>3</sup> at 25 °C (77 °F)                            |
| n) Water solubility                             | 18 g/l at 20 °C (68 °F) - completely soluble                       |
| o) Partition coefficient: n-octanol/water       | Pow: 40; log Pow: 1.5 at 25 °C (77 °F)                             |
| p) Auto-ignition temperature                    | 205 °C (401 °F) at 1,005 hPa (754 mmHg)                            |
| q) Decomposition temperature                    | No data available                                                  |
| r) Viscosity                                    | 0.54 mm <sup>2</sup> /s at 20 °C (68 °F) -                         |
| s) Explosive properties                         | No data available                                                  |
| t) Oxidizing properties                         | No data available                                                  |

**9.2 Other safety information**

No data available

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**10. STABILITY AND REACTIVITY****10.1 Reactivity**

No data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

Vapours may form explosive mixture with air.

**10.4 Conditions to avoid**

Heat, flames and sparks.

**10.5 Incompatible materials**

Oxidizing agents, Strong bases, Strong reducing agents

## 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 6,490 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - 14.3 mg/l  
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - 4,857 mg/kg  
(OECD Test Guideline 402)

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: May cause sensitisation by skin contact.  
(OECD Test Guideline 406)

#### Germ cell mutagenicity

S. typhimurium

Result: negative

OECD Test Guideline 474

Mouse

Result: negative

#### 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.

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

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Additional Information

RTECS: YV3600000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

|                                                     |                                                                                                    |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | LC50 - Pimephales promelas (fathead minnow) - 12.4 mg/l - 96 h<br>(OECD Test Guideline 203)        |
| Toxicity to daphnia and other aquatic invertebrates | semi-static test EC50 - Daphnia magna (Water flea) - 31.5 mg/l - 48 h<br>(OECD Test Guideline 202) |
| Toxicity to algae                                   | static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - 20 mg/l - 72 h              |
| Toxicity to bacteria                                | EC50 - Pseudomonas putida - 850 mg/l - 0.5 h                                                       |

### 12.2 Persistence and degradability

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 64.1 % - Readily biodegradable.<br>(OECD Test Guideline 301D) |
|------------------|-------------------------------------------------------------------------------------------------------|

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.

No data available

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### 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.

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## 14. TRANSPORT INFORMATION

#### DOT (US)

|                                     |          |                   |
|-------------------------------------|----------|-------------------|
| UN number: 2058                     | Class: 3 | Packing group: II |
| Proper shipping name: Valeraldehyde |          |                   |
| Reportable Quantity (RQ):           |          |                   |
| Poison Inhalation Hazard: No        |          |                   |

#### IMDG

|                                     |          |                   |                  |
|-------------------------------------|----------|-------------------|------------------|
| UN number: 2058                     | Class: 3 | Packing group: II | EMS-No: F-E, S-D |
| Proper shipping name: VALERALDEHYDE |          |                   |                  |

#### IATA

|                                     |          |                   |
|-------------------------------------|----------|-------------------|
| UN number: 2058                     | Class: 3 | Packing group: II |
| Proper shipping name: Valeraldehyde |          |                   |

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## 15. REGULATORY INFORMATION

### SARA 302 Components

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

#### **SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### **SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

#### **Massachusetts Right To Know Components**

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| Valeraldehyde | 110-62-3 | 1994-04-01    |

#### **Pennsylvania Right To Know Components**

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| Valeraldehyde | 110-62-3 | 1994-04-01    |

#### **New Jersey Right To Know Components**

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| Valeraldehyde | 110-62-3 | 1994-04-01    |

#### **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**

#### **Full text of H-Statements referred to under sections 2 and 3.**

|               |                                      |
|---------------|--------------------------------------|
| Acute Tox.    | Acute toxicity                       |
| Aquatic Acute | Acute aquatic toxicity               |
| Eye Irrit.    | Eye irritation                       |
| Flam. Liq.    | Flammable liquids                    |
| H225          | Highly flammable liquid and vapour.  |
| H317          | May cause an allergic skin reaction. |
| H319          | Causes serious eye irritation.       |
| H332          | Harmful if inhaled.                  |
| H335          | May cause respiratory irritation.    |
| H402          | Harmful to aquatic life.             |

#### **HMIS Rating**

|                        |   |
|------------------------|---|
| Health hazard:         | 2 |
| Chronic Health Hazard: |   |
| Flammability:          | 3 |
| Physical Hazard        | 0 |

#### **NFPA Rating**

|                    |   |
|--------------------|---|
| Health hazard:     | 2 |
| Fire Hazard:       | 3 |
| Reactivity Hazard: | 0 |

#### **Further information**

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#### **Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

