1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

- **Product name**: Valeric acid
- **Product Number**: 110140
- **Brand**: Aldrich
- **Index-No.**: 607-143-00-3
- **CAS-No.**: 109-52-4

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

- **Identified uses**: Laboratory chemicals, Manufacture 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)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

- **Acute toxicity, Oral (Category 4)**, H302
- **Skin corrosion (Category 1B)**, H314
- **Serious eye damage (Category 1)**, H318
- **Reproductive toxicity (Category 2)**, H361
- **Acute aquatic toxicity (Category 3)**, H402
- **Chronic aquatic toxicity (Category 3)**, H412

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)**
  - H302: Harmful if swallowed.
  - H314: Causes severe skin burns and eye damage.
  - H318: Causes serious eye damage.
  - H361: Suspected of damaging fertility or the unborn child.
  - H412: Harmful to aquatic life with long lasting effects.
- **Precautionary statement(s)**
  - P201: Obtain special instructions before use.
  - P202: Do not handle until all safety precautions have been read and
understood.

P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
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 - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms:
Pentanoic acid
n-Valeric acid
Formula: \( \text{C}_5\text{H}_{10}\text{O}_2 \)
Molecular weight: 102.13 g/mol
CAS-No.: 109-52-4
EC-No.: 203-677-2
Index-No.: 607-143-00-3

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valeric acid</td>
<td>Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Repr. 2; Aquatic Acute 3; Aquatic Chronic 3; H302, H314, H318, H361, H412</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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
Take off contaminated clothing and shoes immediately. 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. Continue rinsing eyes during transport to hospital.
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

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
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

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. Evacuate personnel to safe 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
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
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.
Storage class (TRGS 510): Combustible, corrosive hazardous materials

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
Contains no substances with occupational exposure limit values.
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
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 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.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 30 min
Material tested: Lapren® (KCL 706 / Aldrich Z677558, 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. 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 multipurpose 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Form: clear, liquid</td>
</tr>
<tr>
<td></td>
<td>Colour: colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>Stench.</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>2.7 at 40 g/l at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: -20 °C (-4 °F) - lit.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>110 - 111 °C (230 - 232 °F) at 13 hPa (10 mmHg) - lit.</td>
</tr>
<tr>
<td></td>
<td>185 °C (365 °F) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
<td>96 °C (205 °F) - closed cup</td>
</tr>
</tbody>
</table>
h) Evaporation rate  No data available

i) Flammability (solid, gas)  No data available

j) Upper/lower flammability or explosive limits
   Upper explosion limit: 7.6 % (V)
   Lower explosion limit: 1.6 % (V)

k) Vapour pressure  0.20 hPa (0.15 mmHg) at 20 °C (68 °F)

l) Vapour density  3.53 - (Air = 1.0)

m) Relative density  0.939 g/mL at 25 °C (77 °F)

n) Water solubility  ca.40 g/l at 20 °C (68 °F)

o) Partition coefficient: n-octanol/water  log Pow: 1.39

p) Auto-ignition temperature  No data available

q) Decomposition temperature  No data available

r) Viscosity  No data available

s) Explosive properties  No data available

t) Oxidizing properties  No data available

9.2 Other safety information
   Relative vapour density  3.53 - (Air = 1.0)

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
   No data available

10.4 Conditions to avoid
   No data available

10.5 Incompatible materials
   Strong oxidizing agents

10.6 Hazardous decomposition products
   Other decomposition products - No data available
   In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
   Acute toxicity
   LD50 Oral - Mouse - 600 mg/kg

   Inhalation: No data available
   Dermal: No data available
   No data available

   Skin corrosion/irritation
   No data available

   Serious eye damage/eye irritation
   No data available
Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

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

Reproductive toxicity - Rat - Oral
Maternal Effects: Other effects. Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Musculoskeletal system.

Suspected human reproductive toxicant
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: YV6100000
Nausea, Headache, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 45 mg/l - 48 h

12.2 Persistence and degradability
No data available

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 with long lasting effects.

Avoid release to the environment.
13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3265    Class: 8    Packing group: III
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Valeric acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3265    Class: 8    Packing group: III    EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Valeric acid)

IATA
UN number: 3265    Class: 8    Packing group: III
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Valeric acid)

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
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Valeric acid
CAS-No. 109-52-4    Revision Date 1993-04-24

Pennsylvania Right To Know Components
Valeric acid
CAS-No. 109-52-4    Revision Date 1993-04-24

New Jersey Right To Know Components
Valeric acid
CAS-No. 109-52-4    Revision Date 1993-04-24

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.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.
Acute Tox.  Acute toxicity
Aquatic Acute  Acute aquatic toxicity
Aquatic Chronic       Chronic aquatic toxicity
Eye Dam.             Serious eye damage
H302                 Harmful if swallowed.
H314                 Causes severe skin burns and eye damage.
H318                 Causes serious eye damage.
H361                 Suspected of damaging fertility or the unborn child.
H402                 Harmful to aquatic life.
H412                 Harmful to aquatic life with long lasting effects.

**HMIS Rating**
- Health hazard: 3
- Chronic Health Hazard: *
- Flammability: 1
- Physical Hazard: 0

**NFPA Rating**
- Health hazard: 3
- Fire Hazard: 1
- Reactivity Hazard: 0

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

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