Section 1. Product and Company Identification

Product Name: n-Valeric acid
Product ID: V0144
Chemical Name (Synonyms): Pentanoic acid
Supplier: LKT Laboratories, Inc
545 Phalen Blvd.
St. Paul, MN 55130 USA
Ph: 651-644-8424 Fax: 651-644-8357
www.lktlabs.com - getinfo@lktlabs.com
Emergency Phone #: 1-800-424-9300

Section 2. Hazards Identification

GHS Classification
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

GHS Label elements including precautionary statements

Pictogram
Signal word: Danger
Hazard statements
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 statements
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 + P313 - 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.
P303 + P361 + P353 - IF ON SKIN (or hair): Remove, Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position 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 CONCEIVED: Get medical advice and/or attention.
P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 - Dispose of contents or container to an approved waste disposal plant.

HMIS Classification
Health hazard: 3
Chronic health hazard: *
Flammability: 1
Physical hazard: 0

NFPA Rating
Health hazard: 3
Fire hazard: 1
Reactivity hazard: 0

Potential Health Effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes severe skin burns.
Eyes: Causes severe eye damage.
Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>Formula</th>
<th>Formula Wt.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C₅H₁₀O₂</td>
<td>102.13</td>
<td>109-52-4</td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

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

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Skin Contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

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

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

Section 5. Firefighting Measures

Flash Point
96˚C - closed cup.

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

Firefighting Procedures
Wear self-contained breathing apparatus and protective clothing for firefighting if necessary.

Unusual Fire Hazards
Carbon oxides.

Section 6. Accidental Release Measures

Personal Precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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 cleanup
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Section 7. Handling and Storage

Handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Storage Conditions
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.

Hazardous Decomposition Products
Not available.

Other Remarks
Storage class (TRGS 510): Combustible, corrosive hazardous materials.
Section 8. Exposure Controls/Personal Protection

Personal protective equipment

EXPOSURE CONTROLS
Contains no substances with occupational exposure limit values. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

PERSONAL PROTECTION
Eye and face protection: Tightly fitting safety goggles. Face shield (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 and splash contact - Material: butyl-rubber (full) Nature latex/chloroprene (splash), Minimum layer thickness: 0.3mm (full) and 0.6mm (splash), Break through time: 480 min. (full) and 30 min. (splash), Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M) (full) and Lapren® (KCL 897 / Aldrich Z677647, Size M) (splash).

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).

Section 9. Physical and Chemical Properties

Physical State
Liquid.

Color
Clear, colorless liquid.

Boiling Point
110 - 111˚C at 13hPa - 185˚C

Melting Point
Melting point/freezing point: Melting point/range: -20 to -18˚C.

Density
0.939 g/cm³ at 25˚C

Solubility
Not available.

Flash Point
96˚C - closed cup.

pH
2.7 at 40 g/l at 20˚C (68˚F)

Lower explosion limit
7.6% (V)

Autoignition temperature
Not available.

Upper explosion limit
1.6% (V)

Vapor pressure
0.20 hPa at 20˚C

Water solubility
ca. 40 g/l at 20˚C

Partition coefficient:

n-octanol/water
log Pow: 1.39

Relative vapor density
3.53 - (Air = 1.0)

Section 10. Stability and Reactivity

Stability
Stable under recommended storage conditions.

Materials To Avoid
Strong oxidizing agents.

Hazardous Decomposition Products
Not available.
Section 11. Toxicological Information

**Oral LD50**
Mouse - 600 mg/kg

**Inhalation LC50**
Not available.

**Dermal LD50**
Not available.

**Other information on acute toxicity**
Not available.

**Skin corrosion/irritation**
Not available.

**Serious eye damage/irritation**
Not available.

**Respiratory or skin sensitization**
Not available.

**Germ cell mutagenicity**
Not available.

**Reproductive Toxicity**
Not available. Rat - Oral

**Aspiration Hazard**
Not available.

**Synergistic effects**
Not available.

**Specific organ toxicity single exposure (GHS)**
Not available.

**Specific organ toxicity repeated exposure (GHS)**
Not available.

**Teratogenicity**
Not available.

**Additional Information**
RTECS: YV6100000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Potential Health Effects**
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes severe skin burns.
Eyes: Causes severe eye damage.
Ingestion: Acute toxicity. Harmful if swallowed.
Reproductive toxicity: Suspected of damaging fertility or the unborn child.

**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.

Section 12. Ecological Information

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

**Mobility in soil**
Not available.

**PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not
Persistence and degradability Not available.

Other adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harm to aquatic life with long lasting effects. Avoid release to the environment.

Bioaccumulative potential Not available.

Section 13. Disposal Considerations
Waste Disposal
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Dispose of as unused product.

Section 14. Transport Information
DOT (US) UN number: 3265 Class: 8 Packing group: II Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Valeric acid) Reportable Quantity (RQ): Poison Inhalation Hazard: No
IATA UN number: 3265 Class: 8 Packing group: II Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Valeric acid)
IMDG UN number: 3265 Class: 8 Packing group: II EMS-No: F-A, S-B Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Valeric acid)

Further Information

Section 15. Regulatory Information
Reach No.

SARA 302 Components No chemicals in this material are subject to the reporting requirements of SARA Title, 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 Components Acute health hazard and chronic health hazard.

Massachusetts Right To Know Components Valeric acid CAS #: 109-52-4 Revision Date: 1993-04-24
Pennsylvania Right To Know Components Valeric acid CAS #: 109-52-4 Revision Date: 1993-04-24
New Jersey Right To Know Components Valeric acid CAS #: 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.

Section 16. Other Information
Other information The information in this document is believed to be correct but is not necessarily complete. LKT does not guarantee the accuracy of the information. The burden of verifying the information in this document rests solely upon the user.