

# Valeric acid

sc-216049



The Power to Question

## Material Safety Data Sheet

Hazard Alert Code  
Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

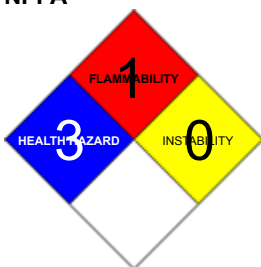
### PRODUCT NAME

Valeric acid

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch

Within the US & Canada: 877-715-9305

Outside the US & Canada: +800 2436 2255

(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C5-H10-O2, CH3(CH2)3-CO2H, "butanecarboxylic acid", "1-butanecarboxylic acid", "n-pentanoic acid", "pentanoic acid", "propyl acetic acid", "valerianic acid", "n-valeric acid"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

|              |   | Min | Max |
|--------------|---|-----|-----|
| Flammability | 1 |     |     |
| Toxicity     | 2 |     |     |
| Body Contact | 3 |     |     |
| Reactivity   | 1 |     |     |
| Chronic      | 2 |     |     |

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Causes burns.

Risk of serious damage to eyes.

Harmful in contact with skin and if swallowed.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus.

Immediate pain and difficulties in swallowing and speaking may also be evident.

■ Ingestion of low-molecular organic acid solutions may produce spontaneous haemorrhaging, production of blood clots, gastrointestinal damage and narrowing of the oesophagus and stomach entry.

##### EYE

■ The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.

■ If applied to the eyes, this material causes severe eye damage.

■ Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.

Mild burns of the epithelia generally recover rapidly and completely.

■ Solutions of low-molecular weight organic acids cause pain and injury to the eyes.

##### SKIN

■ The material can produce chemical burns following direct contact with the skin.

■ Skin contact with the material may be harmful; systemic effects may result following absorption.

■ Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

##### INHALED

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.

There may be dizziness, headache, nausea and weakness.

■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ High concentrations cause inflamed airways and watery swelling of the lungs with oedema.

#### CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Prolonged or repeated inhalation of vapor or mist may cause pulmonary oedema (lung damage) and cyanosis.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME         | CAS RN   | %   |
|--------------|----------|-----|
| valeric acid | 109-52-4 | >95 |

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

## EYE

If this product comes in contact with the eyes

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

## SKIN

If skin or hair contact occurs

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

## INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Inhalation of vapors or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

## NOTES TO PHYSICIAN

- For acute or short term repeated exposures to strong acids
  - Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
  - Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
  - Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
  - Strong acids produce a coagulation necrosis characterized by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

## Section 5 - FIRE FIGHTING MEASURES

|                            |            |
|----------------------------|------------|
| Vapor Pressure (mmHG)      | Negligible |
| Upper Explosive Limit (%)  | 7.6        |
| Specific Gravity (water=1) | 0.939      |
| Lower Explosive Limit (%)  | 1.6        |

## EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

## FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

## GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.

Combustion products include carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.

## **FIRE INCOMPATIBILITY**

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result

## **Section 6 - ACCIDENTAL RELEASE MEASURES**

### **MINOR SPILLS**

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.
- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

### **MAJOR SPILLS**

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

## **Section 7 - HANDLING AND STORAGE**

### **PROCEDURE FOR HANDLING**

- DO NOT allow clothing wet with material to stay in contact with skin
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

### **RECOMMENDED STORAGE METHODS**

- DO NOT use aluminium or galvanised containers
- Check regularly for spills and leaks
- Glass container is suitable for laboratory quantities
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

<.

### **STORAGE REQUIREMENTS**

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

## **Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

### **EXPOSURE CONTROLS**

The following materials had no OELs on our records

- valeric acid CAS109-52-4

### **PERSONAL PROTECTION**



## RESPIRATOR

- Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

## EYE

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.

## HANDS/FEET

- Elbow length PVC gloves
- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

## OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

## ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Acid.

|                           |               |                                |               |
|---------------------------|---------------|--------------------------------|---------------|
| State                     | LIQUID        | Molecular Weight               | 102.13        |
| Melting Range (°F)        | -30           | Viscosity                      | Not Available |
| Boiling Range (°F)        | 368           | Solubility in water (g/L)      | Miscible      |
| Flash Point (°F)          | 190           | pH (1% solution)               | Not available |
| Decomposition Temp (°F)   | Not Available | pH (as supplied)               | Not available |
| Autoignition Temp (°F)    | 707           | Vapor Pressure (mmHG)          | Negligible    |
| Upper Explosive Limit (%) | 7.6           | Specific Gravity (water=1)     | 0.939         |
| Lower Explosive Limit (%) | 1.6           | Relative Vapor Density (air=1) | 3.5           |
| Volatile Component (%vol) | Negligible    | Evaporation Rate               | Very Slow     |

| Material                | Value |
|-------------------------|-------|
| VALERIC ACID            |       |
| log Kow (Sangster 1997) | 1.39  |

### APPEARANCE

Oily liquid, acid reaction; mixes with water. (130) Disagreeable odor and pungent sour taste. pKa (25 deg C) 4.84

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Contact with alkaline material liberates heat
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

### STORAGE INCOMPATIBILITY

- Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- Segregate from alkalies, oxidizing agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
- Avoid reaction with oxidizing agents, bases and strong reducing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

valeric acid

### TOXICITY AND IRRITATION

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

## Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

### Ecotoxicity

| Ingredient   | Persistence:<br>Water/Soil | Persistence: Air  | Bioaccumulation | Mobility |
|--------------|----------------------------|-------------------|-----------------|----------|
| valeric acid | LOW                        | No Data Available | LOW             | HIGH     |

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

| Name / EHS<br>Cas No<br>/<br>RTECS<br>No   | TRN      | A1a | A1b | A1 | A2 | B1 | B2 | C1 | C2 | C3 | D1  | D2 | D3 | E1 | E2 | E3 |   |
|--|----------|-----|-----|----|----|----|----|----|----|----|-----|----|----|----|----|----|---|
| Pentano<br>ic acid 9<br>/<br>CAS:109<br>- 52- 4<br>/<br>Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)<br>NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,<br>B1=Acuteaquatic toxicity LC/EC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),<br>C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation &<br>corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats,<br>E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3:<br>C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitizing, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury,<br>N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater,<br>F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard.<br>(GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships) | 110<br>9 | 562 | 1   |    | 1  | NI | 2  | NI | 1  | 2  | (3) | 3  | 3  |    |    | FD | 3 |

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorized landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus
- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

## Section 14 - TRANSPORTATION INFORMATION

### DOT:

|   |        |   |                         |
|---|--------|---|-------------------------|
| Symbols:                                      | None   | Hazard class or Division:                         | 8                       |
| Identification Numbers:                       | UN3265 | PG:   | II                      |
| Label Codes:                                  | 8      | Special provisions:                               | B2, IB2, T11, TP2, TP27 |
| Packaging: Exceptions:                        | 154    | Packaging: Non-bulk:                              | 202                     |
| Packaging: Exceptions:                        | 154    | Quantity limitations:<br>Passenger aircraft/rail: | 1 L                     |
| Quantity Limitations: Cargo<br>aircraft only: | 30 L   | Vessel stowage: Location:                         | B                       |
| Vessel stowage: Other:                        | 40     |   |                         |

Hazardous materials descriptions and proper shipping names:

Corrosive liquid, acidic, organic, n.o.s.

### Air Transport IATA:

|                       |      |                    |      |
|-----------------------|------|--------------------|------|
| ICAO/IATA Class:      | 8    | ICAO/IATA Subrisk: | None |
| UN/ID Number:         | 3265 | Packing Group:     | II   |
| Special provisions:   | A3   |                    |      |
| Cargo Only            |      |                    |      |
| Packing Instructions: | 855  | Maximum Qty/Pack:  | 30 L |

|  |         |   |       |
|--|---------|---|-------|
| Passenger and Cargo  |         | Passenger and Cargo                     |       |
| Packing Instructions:  | 851     | Maximum Qty/Pack:                       | 1 L   |
| Passenger and Cargo<br>Limited Quantity  |         | Passenger and Cargo<br>Limited Quantity |       |
| Packing Instructions:  | Y840    | Maximum Qty/Pack:                       | 0.5 L |
| Shipping name:CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains valeric acid) |         |   |       |
| <b>Maritime Transport IMDG:</b>  |         |   |       |
| IMDG Class:  | 8       | IMDG Subrisk:                           | None  |
| UN Number:   | 3265    | Packing Group:                          | II    |
| EMS Number:  | F-A,S-B | Special provisions:                     | 274   |
| Limited Quantities:  | 1 L     |   |       |
| Shipping name:CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains valeric acid) |         |   |       |

## Section 15 - REGULATORY INFORMATION

### valeric acid (CAS: 109-52-4) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution - Norway", "US - Massachusetts Oil & Hazardous Material List", "US - New Jersey Right to Know Hazardous Substances (English)", "US - Pennsylvania - Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US DOT Coast Guard Bulk Hazardous Materials - List of Flammable and Combustible Bulk Liquid Cargoes", "US EPA High Production Volume Program Chemical List", "US FDA Everything Added to Food in the United States (EAFUS)", "US Postal Service (USPS) Hazardous Materials Table: Postal Service Mailability Guide", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Inhalation may produce health damage\*.
- Cumulative effects may result following exposure\*.

\* (limited evidence).

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
www.chemwatch.net/references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

- For detailed advice on Personal Protective Equipment, refer to the following U.S. Regulations and Standards:

OSHA Standards - 29 CFR:  
1910.132 - Personal Protective Equipment - General requirements  
1910.133 - Eye and face protection  
1910.134 - Respiratory Protection  
1910.136 - Occupational foot protection  
1910.138 - Hand Protection  
Eye and face protection - ANSI Z87.1  
Foot protection - ANSI Z41  
Respirators must be NIOSH approved.

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