

Material Safety Data Sheet

Version 4.1

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1-Pentanol

Product Number : 398268

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

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Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Combustible Liquid, Target Organ Effect, Irritant

Target Organs

Central nervous system

Other hazards which do not result in classification

Lachrymator.

GHS Classification

Flammable liquids (Category 3)

Acute toxicity, Inhalation (Category 4)

Acute toxicity, Dermal (Category 5)

Acute toxicity, Oral (Category 5)

Skin irritation (Category 2)

Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H226

Flammable liquid and vapour.

H303 + H313

May be harmful if swallowed or in contact with skin.

H315

Causes skin irritation.

H332

Harmful if inhaled.

H335

May cause respiratory irritation.

Precautionary statement(s)

P261

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 2
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : n-Amyl alcohol
Pentyl alcohol

Formula : C₅H₁₂O
Molecular Weight : 88.15 g/mol

Component		Concentration
Pentan-1-ol		
CAS-No.	71-41-0	-
EC-No.	200-752-1	
Index-No.	603-200-00-1	

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

Flush eyes with water as a precaution.

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

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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 vapors, 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.

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.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Store in cool place. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Pentan-1-ol	71-41-0	TWA	100 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

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 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).

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.

Eye 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 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	liquid
Colour	colourless

Safety data

pH	7
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Melting point/freezing point	Melting point/range: -78 °C (-108 °F) - lit.
Boiling point	136 - 138 °C (277 - 280 °F) - lit.
Flash point	49 °C (120 °F) - closed cup
Ignition temperature	300 °C (572 °F)
Autoignition temperature	no data available
Lower explosion limit	1.2 %(V)
Upper explosion limit	10 %(V)
Vapour pressure	2.0 hPa (1.5 mmHg) at 20 °C (68 °F)
Density	0.811 g/cm ³ at 25 °C (77 °F)
Water solubility	22.8 g/l at 25 °C (77 °F)
Partition coefficient: n-octanol/water	log Pow: 1.51
Relative vapour density	3.04 - (Air = 1.0)
Odour	characteristic
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

no data available

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents, Alkali metals, Strong acids, Halides, Aldehydes

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 - mouse - 200 mg/kg

Remarks: Behavioral:General anesthetic.

LD50 Oral - rat - 3,670 mg/kg

Inhalation LC50

Dermal LD50

LD50 Dermal - rabbit - 2,306 mg/kg

Remarks: Liver:Other changes. Kidney, Ureter, Bladder:Other changes.

Other information on acute toxicity

no data available

Skin corrosion/irritation

Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation

Eyes - rabbit - Severe eye irritation - 24 h

Respiratory or skin sensitization

Did not cause sensitization on laboratory animals.

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

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

Inhalation - 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	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

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

Synergistic effects

no data available

Additional Information

RTECS: SB9800000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 370 - 490 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 341 mg/l - 48 h

Persistence and degradability

Biodegradability	aerobic
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Result: 97 % - Readily biodegradable.

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

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: 1105 Class: 3 Packing group: III
Proper shipping name: Pentanols
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN number: 1105 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: PENTANOLS
Marine pollutant: No

IATA

UN number: 1105 Class: 3 Packing group: III
Proper shipping name: Pentanols

15. REGULATORY INFORMATION

OSHA Hazards

Combustible Liquid, Target Organ Effect, 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

SARA 313: 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, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Pentan-1-ol	71-41-0	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Pentan-1-ol	71-41-0	2007-03-01

New Jersey Right To Know Components

CAS-No.	Revision Date
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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.

16. OTHER INFORMATION**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
