Chemical Safety Data Sheet MSDS / SDS

Pentan-1-ol SDS

Revision Date:2024-04-25 Revision Number:1

Section 1 Section 2 Section 3 Section 4 Section 5 Section 6 Section 7 Section 8
Section 9 Section 10 Section 11 Section 12 Section 13 Section 14 Section 15 Section 16

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Pentan-1-ol

CAS: 71-41-0

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable liquids, Category 3
Skin irritation, Category 2

Acute toxicity - Category 4, Inhalation
Specific target organ toxicity – single exposure, Category 3

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H226 Flammable liquid and vapour
H315 Causes skin irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P317 Get medical help.

P319 Get medical help if you feel unwell.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Pentan-1-ol
Common names and synonyms:	Pentan-1-ol
CAS number:	71-41-0
EC number:	200-752-1
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Seek medical attention if you feel unwell.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

Irritation of skin, eyes, and respiratory tract; headache and vertigo; dyspnea and cough; nausea, vomiting, and diarrhea. Double vision, deafness, delirium, and occasionally fatal poisoning, preceded by severe nervous symptoms, have been reported. Coma, glycosuria, and methemoglobinemia can occur. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

There is no antidote for intoxication /of pentyl alcohols/. If symptoms develop, the victim should be removed from the contaminated area and given supportive treatment if it is needed. Pentyl alcohols

SECTION 5: Firefighting measures

Suitable extinguishing media

Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.

Specific hazards arising from the chemical

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

Special protective actions for fire-fighters

Use alcohol-resistant foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Remove all ignition sources. Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Environmental considerations: Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. pentanols

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 43°C use a closed system, ventilation and explosion-proof electrical equipment. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants.Fireproof. Separated from strong oxidants, and alkaline metals and alkaline-earth metals. Keep in a well-ventilated room.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: 73 mg/m3, 20 ppm; peak limitation category: I(2); pregnancy risk group: C

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	N-pentanol is a colorless liquid with a mild to moderately strong odor. Less dense than water. Flash point 91°F. Boiling point 280°F. Vapors heavier than air. Moderately toxic by ingestion. Vapors may irritate skin and eyes. Used as a solvent and to make other chemicals.
Colour:	Colorless liquid
Odour:	CHARACTERISTIC FUSEL-LIKE ODOR
Melting point/freezing point:	-79°C(lit.)

Boiling point or initial boiling point and boiling range:	136-138°C(lit.)
Flammability:	Flammable. Heating will cause rise in pressure with risk of bursting.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 1.2% by volume; Upper flammable limit: 10.0% by volume at 212 deg F (100 deg C)
Flash point:	49°C
Auto-ignition temperature:	572°F
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	5 mm2/s at 20°C
Solubility:	10 to 50 mg/mL at 63° F (NTP, 1992)
Partition coefficient n-octanol/water:	low Kow= 1.51
Vapour pressure:	1 mm Hg at 56.5° F ; 2.8 mm Hg at 68° F (NTP, 1992)
Density and/or relative density:	0.811g/mLat 25°C(lit.)
Relative vapour density:	3 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Reacts violently with oxidants.

Chemical stability

no data available

Possibility of hazardous reactions

Extremely flammable if exposed to heat or flame.Moderately toxic, flammable if exposed to powerful oxidizers. Incompatible with oxidizing materials, hydrogen trisulfide [Sax, 9th ed., 1996, p. 224].

Conditions to avoid

no data available

Incompatible materials

Attacks many alkaline and earth alkaline metals forming flammable/explosive gas.

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Mouse oral 200 mg/kg

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. If swallowed the substance may cause vomiting and could result in aspiration pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels could cause lowering of consciousness.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 Brachydanio rerio (Zebra fish) 530 mg/L/96 hr; static

Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (Water flea; immobilizaiton) 341 mg/L/48 hr />99% n-Pentanol, <1% 3-Methylbutanol-1

Toxicity to algae: EC50 Scenedesmus quadricauda (Algae; cell multiplication inhibition) 260 mg/L/8 days; pH 7.0

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: In 5-day BOD tests with sewage as microbial inoculum, the oxygen consumption of n-pentyl alcohol ranged from 59 to 86.9% of the theoretical BOD(1,4-7). In a Warburg test with activated sludge as inoculum, the oxygen consumption at 1 day of incubation was 28% of the theoretical value(3). At concentrations above 300 mg/L, n-pentyl alcohol may have an inhibitory effect on the oxidative respiratory rate in the presence of activated sludge(8). The first order rate constants (at a constant microorganism concn) for biodegradation of n-pentyl alcohol in non-adapted activated sludge was 0.0285 per hr(2) corresponding to an aerobic biodegradation half-life of 1 day.

Bioaccumulative potential

An estimated BCF of 3 was calculated for n-pentyl alcohol(SRC) using a log Kow of 1.51(1) and a regression derived equation(2). Based on a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of n-pentyl alcohol is estimated as 160(SRC), using a log Kow of 1.51(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that n-pentyl alcohol is expected to have moderate mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1105 (For reference only, please check.)
IMDG: UN1105 (For reference only, please check.)
IATA: UN1105 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: PENTANOLS (For reference only, please check.)
IMDG: PENTANOLS (For reference only, please check.)
IATA: PENTANOLS (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)
IMDG: II (For reference only, please check.)
IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/