

## Chemical Safety Data Sheet MSDS / SDS

## Pentane

Revision Date:2025-03-01 Revision Number:1

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

## Product identifier

Product name : Pentane  
CBnumber : CB6288989  
CAS : 109-66-0  
EINECS Number : 203-692-4  
Synonyms : pentane,n-Pentane

## 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  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P301+P310 IF SWALLOWED: 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/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P331 Do NOT induce vomiting.

P370+P378 In case of fire: Use ... for extinction.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

#### **Hazard statements**

H225 Highly Flammable liquid and vapour

H260 In contact with water releases flammable gases which may ignite spontaneously

H304 May be fatal if swallowed and enters airways

H315 Causes skin irritation

H319 Causes serious eye irritation

H336 May cause drowsiness or dizziness

H401 Toxic to aquatic life

H411 Toxic to aquatic life with long lasting effects

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Pentane
Synonyms	: pentane,n-Pentane
CAS	: 109-66-0
EC number	: 203-692-4
MF	: C <sub>5</sub> H <sub>12</sub>
MW	: 72.15

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air. Call in physician.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### **If swallowed**

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### **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

### **Indication of any immediate medical attention and special treatment needed**

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>) Foam Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors. Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

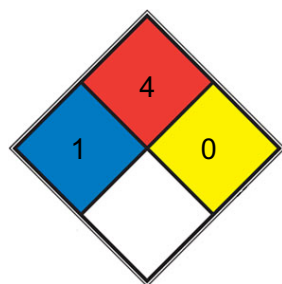
### Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will

■ FIRE 4 burn readily. Includes pyrophoric substances. Flash point below room temperature at 22.8 °C (73 °F). (e.g. acetylene, propane, [hydrogen gas](#))

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

□ SPEC.

□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemizorb?). Dispose of properly. Clean up affected area.

### **Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Hygiene measures**

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

For precautions see section 2.2.

### **Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Refrigerate before opening.

#### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

## Exposure controls

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

required

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

### Exposure limits

TLV-TWA 600 ppm ( $\sim 1800 \text{ mg/m}^3$ ) (ACGIH), 1000 ppm ( $\sim 3000 \text{ mg/m}^3$ ) (OSHA), 500 ppm ( $\sim 1500 \text{ mg/m}^3$ ) (MSHA); STEL 750 ppm ( $\sim 2250 \text{ mg/m}^3$ ) (ACGIH).

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colorless clear, liquid
Odour	benzine-like
Odour Threshold	1.4ppm
pH	No data available
Melting point/freezing point	Melting point/range: $-130 \text{ }^{\circ}\text{C}$ - lit.
Initial boiling point and boiling range	$35 - 36 \text{ }^{\circ}\text{C}$ - lit.
Flash point	$-40 \text{ }^{\circ}\text{C}$
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 8 %(V) Lower explosion limit: 1,4 %(V)
Vapour pressure	585,9 hPa at $21,13 \text{ }^{\circ}\text{C}$
Vapour density	2,49 - (refers to pure substance)
Relative density	0.63
Water solubility	$0,038 \text{ g/l}$ at $20 \text{ }^{\circ}\text{C}$ - partly soluble

Partition coefficient: n-octanol/water	log Pow: 3,45 at 25 °C - Bioaccumulation is not expected.
Autoignition temperature	260,0 °C
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,224 mPa.s at 25 °C
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	1.20 at 25 °C (Jönsson et al., 1982)
λ <sub>max</sub>	λ: 200 nm A <sub>max</sub> : ≤0.70 λ: 210 nm A <sub>max</sub> : ≤0.20 λ: 220 nm A <sub>max</sub> : ≤0.07 λ: 230 nm A <sub>max</sub> : ≤0.02 λ: 250 nm A <sub>max</sub> : ≤0.004

### Other safety information

Surface tension ca.15,49 mN/m at 25 °C

Relative vapor density

2,49 - (refers to pure substance)

## SECTION 10: Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Violent reactions possible with: Nitric acid

Strong oxidizing agents halogens

### Conditions to avoid

Warming.

### Incompatible materials

rubber, various plastics

### Hazardous decomposition products

In the event of fire: see section 5

## SECTION 11: Toxicological information

## Information on toxicological effects

### Acute toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 25,3 mg/l (OECD Test Guideline 403)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: cyclopentane Dermal

### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

### Respiratory or skin sensitization

Buehler Test - Guinea pig Result: negative

(OECD Test Guideline 406)

### Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Method: Regulation (EC) No. 440/2008, Annex, B.10 Result: negative

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Test Type: In vivo micronucleus test Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor) Method: Mutagenicity (micronucleus test) Result: negative

### Carcinogenicity

No data available

### Reproductive toxicity

No data available

### Specific target organ toxicity - single exposure

May cause drowsiness or dizziness. - Central nervous system

### Specific target organ toxicity - repeated exposure

No data available

### Aspiration hazard

May be fatal if swallowed and enters airways.

Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

### Toxicity

LC (in air) in mice: 377 mg/l (Fühner)

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## SECTION 12: Ecological information

### Toxicity

### **Toxicity to fish**

static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 4,26 mg/l

- 96 h

(OECD Test Guideline 203)

### **Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - *Daphnia magna* (Water flea) - 2,7 mg/l - 48 h Remarks: (ECHA)

### **Toxicity to algae**

static test ErC50 - *Selenastrum capricornutum* (green algae) - 10,7 mg/l - 72 h

(OECD Test Guideline 201)

static test NOEC - *Selenastrum capricornutum* (green algae) - 7,51 mg/l - 72 h

(OECD Test Guideline 201)

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 28 d

Result: 87 % - Readily biodegradable. (OECD Test Guideline 301F)

### **Bioaccumulative potential**

No data available

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Toxics Screening Level**

The initial threshold screening level (ITSL) for pentane is 17700 µg/m<sup>3</sup> based on an 8-hour averaging time.

### **Other adverse effects**

Avoid release to the environment. Do not empty into drains.

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## **SECTION 13: Disposal considerations**

### **Waste treatment methods**

#### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### **Incompatibilities**

Vapors may form explosive mixture with air. Incompatible with oxidizers (chlorates, nitrates, peroxides, permanganates, perchlorates, chlorine, bromine, fluorine, etc.); contact may cause fires or explosions. Keep away from alkaline materials, strong bases, strong acids, oxoacids, epoxides. Attacks some plastics, rubbers, and coatings.

#### **Waste Disposal**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. All



federal, state, and local environmental regulations must be observed.

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## SECTION 14: Transport information

### UN number

ADR/RID: 1265 IMDG: 1265 IATA: 1265

### UN proper shipping name

ADR/RID: PENTANES IMDG: PENTANES

IATA: Pentanes

### Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

### Packaging group

ADR/RID: I IMDG: I IATA: I

### Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

### Special precautions for user

No data available

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## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015: Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

United States Toxic Substances Control Act (TSCA) Inventory: Listed. website: <https://www.epa.gov/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC): Listed. website: <https://www.mee.gov.cn/>

Vietnam National Chemical Inventory: Listed. website: <https://chemicaldata.gov.vn/>

EC Inventory: Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS): Listed. website: <https://echa.europa.eu/>

New Zealand Inventory of Chemicals (NZIoC): Listed. website: <https://www.epa.govt.nz/>

Korea Existing Chemicals List (KECL): Listed. website: <http://ncis.nier.go.kr>

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed. website: <https://emb.gov.ph/>

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## 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

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

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

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

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

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

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

## Other Information

High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering the area.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.