

Chemical Safety Data Sheet MSDS / SDS

Pentane

Revision Date:2025-01-11 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 : 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

Precautionary statements

P405 Store locked up.

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

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

P331 Do NOT induce vomiting.

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

Continuerinsing.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P273 Avoid release to the environment.

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

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

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

Hazard statements

H411 Toxic to aquatic life with long lasting effects

H401 Toxic to aquatic life

H336 May cause drowsiness or dizziness

H319 Causes serious eye irritation

H315 Causes skin irritation

H304 May be fatal if swallowed and enters airways

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

H225 Highly Flammable liquid and vapour

SECTION 3: Composition/information on ingredients

Substance

Product name	: Pentane
Synonyms	: pentane,n-Pentane
CAS	: 109-66-0
EC number	: 203-692-4
MF	: C5H12
MW	: 72.15

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

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) 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.

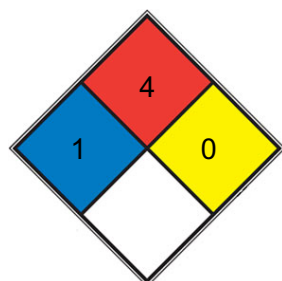
Advice for firefighters

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, [N₂](#))

□ SPEC.

□ HAZ.

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.

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

Reference to other sections

For disposal see section 13.

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

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).

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 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)
λmax	λ: 200 nm Amax: ≤0.70
	λ: 210 nm Amax: ≤0.20
	λ: 220 nm Amax: ≤0.07
	λ: 230 nm Amax: ≤0.02
	λ: 250 nm Amax: ≤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)

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/m³ based on an 8-hour averaging time.

Other adverse effects

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

SECTION 13: Disposal considerations

Waste treatment methods

Product

See 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.

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

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

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>

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

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

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

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

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
- 【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:

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