



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Pentane, anhydrous, 99+-%
Product Number 236705
Brand Aldrich Chemical
Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052
Emergency Phone: 414 273 3650 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex Index Number
N-PENTANE	109-66-0	No	203-692-4	601-006-00-1

Formula C₅H₁₂
Synonyms Amyl hydride, Pentan (Polish), Pentane (ACGIH-OSHA), Pentanen (Dutch), Pentani (Italian), Skellysolve A

Section 3 - Hazards Identification

Emergency Overview
Flammable (USA). Extremely Flammable (EU). Harmful. Dangerous for the environment. Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
Target organ(s): Nerves, Heart.

HMIS Rating
Health: 1* Flammability: 4 Reactivity: 0

NFPA Rating
Health: 1 Flammability: 4 Reactivity: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Flammable Hazards: Yes

Explosion Hazards
Vapor may travel considerable distance to source of ignition and flash back. Container explosion can occur under fire conditions. In advanced or massive fires the area should be evacuated and the fire should be fought from a remote explosion-resistant location.

Flash Point: -57 °F -49 °C

Explosion Limits: Lower: 1.4 % Upper: 8.3 %

Autoignition Temp: 260 °C **Flammability:** Yes

Extinguishing Media

Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Flammable liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area. Shut off all sources of ignition.

Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure
Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Open carefully.

Storage
Suitable
Keep container closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store under nitrogen.

Special Requirements
May develop pressure. Refrigerate before opening.

Section 8 - Exposure Controls / PPE

Engineering Controls

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

Personal Protective Equipment

Respiratory
Government approved respirator.

Hand
Compatible chemical-resistant gloves.

Eye
Chemical safety goggles.

General Hygiene Measures

Wash thoroughly after handling. Wash contaminated clothing before reuse.

Exposure Limits

Country	Type	Value
Poland	NDS	1800 MG/M3
Poland	NDSch	2300 MG/M3
Poland	NDSP	-

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	600 PPM
USA	MSHA	TWA	500 PPM (1475 MG/M3)
USA	OSHA	PEL	8H TWA 1000 PPM (2950 MG/M3)
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	TWACeiling concentration	120 PPM 610 PPM/15M

Section 9 - Physical/Chemical Properties

Appearance	Color
Physical State	Colorless
Clear liquid	
Molecular Weight:	72.15 AMU
pH	N/A
BP/BP Range	35 - 36 °C
MP/MP Range	-130 °C
Freezing Point	N/A
Vapor Pressure	434.28 mmHg
Vapor Density	2.48 g/l
Saturated Vapor Conc.	N/A
SG/Density	0.626 g/cm3
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A

VOC Content	N/A
Water Content	< 0.01 %
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	Log Kow: 3.39
Decomposition Temp.	N/A
Flash Point °F	-57 °F
Flash Point °C	-49 °C
Explosion Limits	Lower: 1.4 % Upper: 8.3 %
Flammability	N/A
Autoignition Temp	260 °C
Refractive Index	1.358
Solubility	N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable.
Materials to Avoid
Strong oxidizing agents.

Hazardous Decomposition Products
Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
May cause skin irritation.
Skin Absorption
May be harmful if absorbed through the skin.
Eye Contact
May cause eye irritation.
Inhalation
Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion
May be harmful if swallowed.

Target Organ(s) or System(s)
Central nervous system, Heart, Lungs.

Signs and Symptoms of Exposure
Contact with eyes can cause redness, tearing, and blurred vision. Prolonged or repeated contact with skin can cause defatting and dermatitis. CNS depression. Damage to the lungs.

RTECS Number: RZ9450000

Toxicity Data

Inhalation - Rat: 364,000 mg/m3 (LC50)
Intravenous - Mouse: 446 MG/KG (LD50)

Section 12 - Ecological Information

Accumulation

Bioaccumulation Potential
Indication of bioaccumulation.

Acute Ecotoxicity Tests

Test Type	Value:
EC50 Daphnia	9.74 mg/l
Species	
Daphnia magna	
Time:	48.0 h

Additional Results/Data from Relevant Scientific Experiments

Avoid contamination of the environment. Because of harmful effects on water organisms, this material should not be introduced into drains.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in lighting as this material is highly flammable.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Pentanes
UN#: 1265
Class: 3
Packing Group: Packing Group II
Hazard Label: Flammable liquid
PIH: Not PIH

IATA

Proper Shipping Name: Pentanes
IATA UN Number: 1265
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: F+ Xn N

Indication of Danger

Extremely Flammable. Harmful. Dangerous for the environment.

Risk Statements

R: 12 51/53 65 66 67

Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful, may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

Safety Statements

S: 9 16 29 33 61 62

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting, seek medical advice immediately and show this container or label.

US Classification and Label Text

Indication of Danger

Flammable (USA) Extremely Flammable (EU). Harmful. Dangerous for the environment.

Risk Statements

Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

Safety Statements

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting, seek medical advice immediately and show this container or label.

US Statements

Target organ(s): Nerves, Heart.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes
NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

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 Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.