

SAFETY DATA SHEET

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

1.1 Product identifiers

Product name: n-Pentane
CAS number: 109-66-0
Synonyms: Pentane

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

Identified Uses: Process chemical, laboratory and scientific research and development.

1.3 Details of the supplier of the safety data sheet

Company : Lab Alley, LLC
22111 Highway 71 West, Suite 601
Spicewood, Texas 78669
U.S.A.

Telephone : 512-668-9918
Fax : 512-886-4008

1.4 Emergency telephone

Emergency Phone # : US & Canada: 1-800-535-5053 INFOTRAC
International 1-352-323-3500 INFOTRAC

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquid (Category 2)
Aspiration hazard (Category 1)
Single target organ toxicity, single exposure (Category 3)
Aquatic toxicity, chronic (Category 2)

2.2 GHS Label elements, including precautionary statements

Pictogram:



Signal Word:

Danger

Hazard statement(s):

Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects.

Precautionary statement(s):

Prevention - Keep away from heat, open flames and hot surface. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist and vapor. Use only outdoors or in a well-ventilated area. Avoid release into the environment. Wear protective gloves, protective clothing and eye protection. **Response** - IF SWALLOWED: DO NOT induce vomiting. Immediately call a POISON CENTER or doctor. IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water or shower. IF INHALED: Remove victim to fresh air and keep at rest in a comfortable position for breathing. Call a POISON CENTER or doctor if you feel unwell. In case of fire: Use water fog, foam, dry chemical or carbon dioxide for extinction. Collect spillage. Store locked up in a well-ventilated place. Keep container tightly closed. Keep cool. Dispose of contents and containers in accordance with national and local regulations.

Hazards not otherwise classified

Repeated exposure may cause skin dryness or cracking.

SECTION 3: Composition/information on ingredients

3.1 Components

Ingredient	CAS Number	Percent	Hazardous Chemical
n-Pentane	109-66-0	95-100%	Yes

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice:

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled:

If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms persist or if the victim feels unwell, seek medical attention.

In case of eye contact:	Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. If irritation persists seek medical attention, preferably from an ophthalmologist.
In case of skin contact:	Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. If irritation persists or if the victim feels unwell, seek medical attention.
In case of ingestion:	Rinse mouth with water if the victim is conscious. Remove dentures if present. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Eyes: Causes eye irritation. Symptoms include inflammation, swelling, discomfort, tearing and blurred vision. Vapor or mist can cause eye irritation. **Skin:** May cause skin irritation with localized redness, itching and discomfort. Prolonged contact with unprotected skin may cause defatting of the skin and dermatitis. Harmful if absorbed through the skin. **Inhalation:** Harmful if inhaled. May cause respiratory irritation with headache, nasal irritation, cough, chest tightness and shortness of breath. May cause nausea, vomiting, drowsiness, dizziness, anesthetic effects, narcosis, fatigue, cyanosis, apnea and cardiac arrest. Higher exposures may cause pulmonary edema and lung damage. May cause central nervous system depression and other central nervous system effects including incoordination, impaired performance, speech difficulties, unconsciousness, coma and death. Prolonged and repeated inhalation may cause permanent brain and nervous system damage. May affect the peripheral nervous system. Symptoms may be delayed. **Ingestion:** Harmful if swallowed. Causes irritation of the gastrointestinal tract with nausea, vomiting, abdominal pain and diarrhea. Causes dizziness, drowsiness, weakness, fatigue, headache and unconsciousness. May cause central nervous system depression with effects similar to those of acute inhalation. This material can get into the lungs during swallowing or vomiting causing lung inflammation and chemical pneumonitis, which may be fatal. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish colored skin, rapid breathing and rapid heart rate. **Chronic:** Individuals with pre-existing skin conditions and respiratory disorders may be more susceptible to the effects of this product. Prolonged or repeated skin contact may cause drying and cracking of the skin, dermatitis or aggravate existing skin conditions. Chronic inhalation, skin absorption or ingestion may cause damage to the central and peripheral nervous systems. Impaired central nervous system functions from pre-existing disorders may be aggravated by exposure to this product. May have a deleterious effect on pre-existing respiratory disorders. Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal. Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain. Chronic solvent abuse has been associated with irregular heart rhythms and potential cardiac arrest.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable (and unsuitable) extinguishing media

Use extinguishing media such as water spray or fog, carbon dioxide, foam and dry chemical. Water jets or streams may spread the fire.

5.2 Specific hazards arising from the substance or mixture

Highly flammable liquid and vapor! Vapors are heavier than air and can travel along the ground to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Exposure to ignition sources (e.g. cell phones) can ignite vapors, causing a flash fire. Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention. **Explosion hazards:** Avoid sources of ignition. Vapors may form an explosive mixture with air, especially in confined spaces. Ground and bond containers in storage and when container is in use.

5.3 Special protective equipment and precautions for firefighters

Firefighters should wear full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Be aware that burning liquid may float on water. Firefighters must control runoff to prevent environmental contamination. Notify appropriate authorities of potential fire and explosion hazard if liquid enters sewers or waterways.

5.4 Further information

No data available.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear appropriate protective clothing and equipment designated in Section 8.2. Ventilate the area. Remove all sources of ignition. NO SMOKING. Clean up spills immediately. Spill creates a slip hazard.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements.

6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. DO NOT FLUSH SPILL DOWN THE DRAIN. Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material using non-sparking tools and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal in accordance with local regulations. n-Pentane is classified as oil under Section 311 of the Clean Water Act (CWA) and under the Oil Pollution Act (OPA). In the USA discharges or spills of material on waters of the United States, their adjoining shorelines or into conduits leading to surface waters must be reported to the National Response Center at 800-424-8802.

6.4 Reference to other sections

For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. Do not inhale mist or vapor. NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Open containers slowly to control possible pressure release. Wash contaminated clothing and shoes thoroughly before reuse. Advice on protection against fire and explosion: Keep away from heat and sources of ignition. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Hygiene measures

Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. This material is a static accumulator. Storage containers should be grounded and bonded. Keep away from heat and ignition sources. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers are hazardous when empty as they contain product residue. Do not cut, drill, weld, braze, solder grind or perform similar operations on or near empty containers. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep out of reach of children.

SECTION 8. Exposure controls/personal protection

8.1 Occupational exposure limits

CAS Number	Ingredient	OSHA PEL	ACGIH TLV	NIOSH
109-66-0	n-Pentane	1,000 ppm; 2,950 mg/m ³ TWA	1,000 TWA	120 ppm; 350 mg/m ³ TWA 610 ppm; 1,800 mg/m ³ ceiling 1,500 ppm IDLH [10% LEL]

8.2 Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

Personal protective equipment

Eye/face protection

Wear safety glasses with unperforated side shields or protective splash goggles during use.

Skin and body protection

Wear protective clothing. Wear protective boots if the situation requires. Wear Nitrile rubber gloves or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period. Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the representative supplier.

Respiratory protection

Always use an approved respirator when vapor/aerosols exceed permissible exposure limits. Where risk assessment shows air-purifying respirators are appropriate use a half-mask 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). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Control of environmental exposure

Do not empty into drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid.
Appearance	Clear, colorless.
Odor	Characteristic, hydrocarbon-like.
Odor Thresh	Not available.
pH	Not applicable.
Melting Point/Range	- 129.7 °C (- 201.5 °F) [literature]
Boiling Point/Range	36 °C (97 °F)
Flash Point	< -40 °C (< -40 °F) TCC
Evaporation Rate	15.8 [n-BuOAc = 1]
Flammability (solid, gas)	Not applicable.
Flammability or explosive limit	Upper : 7.8% (v) Lower : 1.4% (v)
Vapor Pressure	513 mm Hg @ 25 °C
Vapor Density	2.48 (Air=1)
Density	0.63 @ 15.6 °C
Solubility	Negligible.
Partition coefficient; n-octanol/water	log Pow = 3.45 @ 25 °C
Autoignition Temp	242.8 °C (469.0 °F)
Decomposition Temp	Not available.
Viscosity	0.233 cp
Molecular Formula	C5H12
Molecular Weight	72.17
VOC Content(%)	100%
Oxidizing properties	Not applicable.

9.2 Other safety information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is stable under normal handling conditions and use.

10.2 Chemical stability

This material is stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapors may form explosive mixture with air. Hazardous polymerization will not occur.

10.4 Conditions to avoid

High temperatures, sources of ignition, hot surfaces, contact with incompatible materials

10.5 Incompatible materials

Strong oxidizing agents, oxygen.

10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon, hydrocarbon fragments, smoke, toxic fumes and gases.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral: LD50, rat: > 2,000 mg/kg (male/female)

Inhalation: LC50, rat: > 18 mg/l, 4h

Dermal: No data available.

Skin corrosion/irritation

May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Causes eye irritation.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

May cause respiratory irritation, drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

May cause damage to the central and peripheral nervous systems, brain and lungs prolonged and repeated exposure.

Aspiration hazard

May be fatal if swallowed and enters the airways.

Chronic effects

No data available.

11.2 Additional information

Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal. Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain. This product contains no substances present at levels greater than or equal to the 0.1% threshold (de minimis) that are identified as a probable, possible, potential or confirmed carcinogens by ACGIH, IARC, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates that it causes adverse developmental or fertility effects. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information**12.1 Toxicity**

Ecotoxicity: This product is toxic to aquatic life with long lasting effects in the environment. The discharge of small or large quantities of this product should be reported to the proper regulatory agencies.

Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout), static test, 96 h: 4.3 mg/l

Toxicity to aquatic invertebrates: EC50 - Daphnia magna (Water flea), static test, 48 h: 2.7 mg/l

Toxicity to aquatic plants: ErC50 - Selenastrum capricornutum (Green algae), static test, 72 h: 10.7 mg/l

NOEC - Selenastrum capricornutum (Green algae), static test, 72 h: 7.51 mg/l

12.2 Persistence and Degradability

This product is expected to be readily biodegradable.

12.3 Bioaccumulative Potential

n-Pentane has the potential to bioaccumulate.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

Additional ecological information: Do not allow material to run into surface waters, wastewater or soil. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. Disposal considerations

13.1 Waste Disposal Methods

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

DOT

UN-No	UN1265
Proper Shipping Name	Pentanes
Hazard Class	3
Packing Group	II

ICAO/IATA

UN-No	UN1265
Proper Shipping Name	Pentanes
Hazard Class	3
Packing Group	II

IMO/IMDG

UN-No	UN1265
Proper Shipping Name	Pentanes
Hazard Class	3
Packing Group	II

RID/ADR

UN-No	UN1265
Proper Shipping Name	Pentanes
Hazard Class	3
Packing Group	II

SECTION 15: Regulatory information

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

OSHA Process Safety Management Standard: This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: n-Pentane (CAS #109-66-0) is regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: All substances in this product are listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number Not listed.

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number: Not listed.

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals

n-Pentane (CAS #109-66-0)

Security Issue: Release - Flammables

Release: Minimum Concentration = 1%

Release: Screening threshold quantity = 10,000 lb

Superfund Amendments and Reauthorization Act

(SARA) SARA Section 311/312 Hazard Categories

Highly flammable liquid and vapor

May cause drowsiness or dizziness

May be fatal if swallowed and enters airways

Repeated exposure may cause skin dryness or cracking

SARA 313 Information: None of the components of the product exceed the threshold (de minimis) reporting requirements of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: None of the components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

Other U.S. State Inventories

None of the components of this product exceed the threshold (de minimis) reporting levels established by any State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists.

Clean Air Act (CAA)

n-Pentane (CAS #109-66-0) is a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b).

This product does not contain Class 1 Ozone depletors.

This product does not contain Class 2 Ozone depletors.

Clean Water Act (CWA)

This product does not contain Hazardous Substances.

This product does not contain Priority Pollutants.

This product does not contain Toxic Pollutants.

n-Pentane is classified as oil under Section 311 of the CWA and the Oil Pollution Act (OPA) of 1990.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the state of California to cause cancer birth defects or reproductive harm in concentrations that exceed the threshold (de minimis) reporting levels established under Proposition 65.

Other U.S. State Inventories

n-Pentane (CAS #109-66-0) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: CA, DE, NJ, NY, PA, RI.

Canada

WHMIS Hazard Classification: Highly flammable liquid and vapor

May be fatal if swallowed and enters airways

Canadian National Pollutant Release Inventory (NPRI): None of the components of this product are listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 2 (obviously hazardous to water)

Global Chemical Inventory Lists

Country	Inventory Name	Listed
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC) Inventory of	Yes
Japan	Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (KECI)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*Yes - All components of this product comply with the inventory requirements administered by the governing country. No - One or more components of this product are not on the inventory or are exempt from listing.

SECTION 16: Other information

Issue Date	01/24/2022
Revision Date	08/31/2023

Disclaimer:

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.