

# Material Safety Data Sheet

## Pentane

ACC# 18210

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Pentane

**Catalog Numbers:** AC170070200, AC217240040, AC600180050, S80116SPEC, NC9941939, O4062-20, O4062-4, O4062RS19, P393-1, P399-1, P399-4, P399J4, P399RS28, P399SK-1, P399SK-4, P400-4

**Synonyms:** Amyl hydride; n-Pentane; normal pentane.

**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
109-66-0	n-Pentane	>98	203-692-4

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: -49 deg C.

**Danger!** Extremely flammable liquid and vapor. Vapor may cause flash fire. Breathing vapors may cause drowsiness and dizziness. Causes eye and skin irritation. Repeated exposure may cause skin dryness or cracking. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause respiratory tract irritation.

**Target Organs:** Central nervous system, respiratory system, eyes, skin.

#### Potential Health Effects

**Eye:** Causes eye irritation.

**Skin:** Causes skin irritation. Repeated or prolonged exposure may cause drying and cracking of the skin. Volunteers suffered from painful burning sensations, accompanied by itching, after topical application of pentane; after 5 hours, blisters formed on the treated areas.

**Ingestion:** May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Vapors may cause dizziness or suffocation.

**Chronic:** Prolonged or repeated skin contact may cause defatting and dermatitis. Chronic exposure to vapors may produce polyneuropathy. The possibility that chronic exposure to very high concentrations may lead to polyneuropathy cannot be ruled out altogether, despite the substantially lower toxicity of pentane, in comparison with hexane and its neurotoxicity.

### Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

**Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Sensitive to static discharge.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained. Do NOT use straight streams of water.

**Flash Point:** -49 deg C ( -56.20 deg F)

**Autoignition Temperature:** 260 deg C ( 500.00 deg F)

**Explosion Limits, Lower:**1.5

Upper: 7.8

NFPA Rating: (estimated) Health: 1; Flammability: 4; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor or mist.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
n-Pentane	600 ppm TWA	120 ppm TWA; 350 mg/m <sup>3</sup> TWA 1500 ppm IDLH	1000 ppm TWA; 2950 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** n-Pentane: 600 ppm TWA; 1800 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** mild odor - gasoline-like - pleasant odor

**pH:** Not applicable.

**Vapor Pressure:** 514 mm Hg @ 25 deg C

**Vapor Density:** 2.5 (Air=1)

**Evaporation Rate:**28.6 (Butyl acetate=1)

**Viscosity:** Not available.

**Boiling Point:** 36 deg C

**Freezing/Melting Point:**- 130 deg C

**Decomposition Temperature:**Not available.

**Solubility:** Negligible (0.04% at 20°C).

**Specific Gravity/Density:**0.62

**Molecular Formula:**C<sub>5</sub>H<sub>12</sub>

**Molecular Weight:**72.15

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Ignition sources, excess heat.

**Incompatibilities with Other Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 109-66-0: RZ9450000

**LD50/LC50:**

CAS# 109-66-0:

Inhalation, rat: LC50 = 364 gm/m<sup>3</sup>/4H;  
Oral, rat: LD50 = >2000 mg/kg;

**Carcinogenicity:**

CAS# 109-66-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** No information found

**Neurotoxicity:** n-Hexane is a mild irritant and CNS depressant in acute exposure, but its principal effects are damage to the sensory and motor peripheral nerves, particularly in chronic exposure. Because of the otherwise substantially lower toxicity of pentane, in comparison with hexane, it is believed that such effects, if they occur, would require gross exposures, & the 600-ppm TLV-TWA should minimize potential for development of axonopathies.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 9.87 mg/L; 96 Hr.; Unspecified Fish: Fathead Minnow: LC50 = 11.59 mg/L; 96 Hr.; Unspecified Fish: Bluegill/Sunfish: LC50 = 9.99 mg/L; 96 Hr.; Unspecified Water flea Daphnia: LC50 = 9.7 mg/L; 48 Hr.; Unspecified No data available.

**Environmental:** Photolysis or hydrolysis of n-pentane is not expected to be important in soils. The biodegradation of n-pentane may occur in soils; however, primarily volatilization and to some extent adsorption are expected to be far more important fate processes. A calculated Koc range of 580 to 1600 indicates a low mobility class for n-pentane in soils. Based upon an estimated Henry's Law Constant of 1.26 atm-cu m/mole, n-pentane is expected to rapidly volatilize from surface soils.

**Physical:** Based on a vapor pressure of 514 mm Hg at 25°C, n-pentane is expected to exist entirely in the vapor phase in ambient air. n-Pentane does not absorb UV light in the environmentally significant range, >290 nm and probably will not undergo direct photolysis in the atmosphere.

**Other:** Based upon a water solubility of 38.5 mg/l at 25°C and a log Kow of 3.39, the bioconcentration factor (log BCF) for n-pentane has been calculated to be 1.90 and 2.35, respectively, from recommended regression derived equations. These BCF values are not indicative of important bioconcentration in aquatic organisms.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	PENTANES	PENTANES
<b>Hazard Class:</b>	3	3
<b>UN Number:</b>	UN1265	UN1265
<b>Packing Group:</b>	II	II
<b>Additional Info:</b>		FLASHPOINT -49 C

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 109-66-0 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

CAS# 109-66-0: Testing required by manufacturers, processors

#### Section 12b

CAS# 109-66-0: Section 4

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 109-66-0: immediate, delayed, fire.

**Section 313** No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.  
None of the chemicals in this product are listed as Priority Pollutants under the CWA.  
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 109-66-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

XN F+ N

**Risk Phrases:**

R 12 Extremely flammable.  
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R 65 Harmful: may cause lung damage if swallowed.  
R 66 Repeated exposure may cause skin dryness or cracking.  
R 67 Vapours may cause drowsiness and dizziness.

**Safety Phrases:**

S 16 Keep away from sources of ignition - No smoking.  
S 29 Do not empty into drains.  
S 33 Take precautionary measures against static discharges.  
S 9 Keep container in a well-ventilated place.  
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 109-66-0: 1

**Canada - DSL/NDSL**

CAS# 109-66-0 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 109-66-0 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 6/01/1999

**Revision #6 Date:** 6/20/2005

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*