

Burdick & Jackson

Material Safety Data Sheet

Pentane

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Pentane

OTHER/GENERIC NAMES: n-Pentane

PRODUCT USE: Solvent

MANUFACTURER: Honeywell, Burdick & Jackson
1953 South Harvey Street
Muskegon, MI 49442

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm)
1-800-368-0050

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
1-800-707-4555 (Honeywell)
For Transportation Emergencies:
1-800-424-9300 (CHEMTREC - Domestic)
703-527-3887 (CHEMTREC - International)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Pentane	109-66-0	100

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Extremely flammable liquid and vapor. Harmful if swallowed or inhaled. Causes skin, eye and respiratory tract irritation.

POTENTIAL HEALTH HAZARDS

SKIN: Causes irritation. Liquid contact can remove natural oils and cause dermatitis.

EYES: Causes irritation, redness and burning sensation.

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INHALATION: Exposure can cause respiratory tract and throat irritation, headaches, shortness of breath and symptoms similar to intoxication. Overexposure can produce central nervous system depression, coma and respiratory failure.

INGESTION: Ingestion can cause nausea, vomiting, diarrhea, stomach pain, headache, intoxication, and heart failure.

DELAYED EFFECTS: None known.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section.			

4. FIRST AID MEASURES

SKIN: Wash with soap and water and flush with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Launder contaminated clothing and clean shoes before reuse.

EYES: Immediately flush with water, continuing for at least 15 minutes. Get immediate medical attention.

INHALATION: Remove to fresh air. If breathing has stopped, apply artificial respiration. If breathing is difficult, give oxygen provided a qualified operator is available. Get immediate medical attention.

INGESTION: **Aspiration hazard.** If conscious, rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention.

ADVICE TO PHYSICIAN: No specific advice. Treat according to symptoms present.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: -56.2°F (-49°C)

FLASH POINT METHOD: TAG Closed Cup

AUTOIGNITION TEMPERATURE: 564.8°F (296°C)

UPPER FLAME LIMIT (volume % in air): 7.8

LOWER FLAME LIMIT (volume % in air): 1.5

FLAME PROPAGATION RATE (solids): Not applicable

OSHA FLAMMABILITY CLASS: Flammable Liquid.

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EXTINGUISHING MEDIA:

Carbon Dioxide, Dry Chemical or Foam. Water may be ineffective. Water spray may be used to cool fire exposed containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Extremely flammable liquid and vapor. Vapor may cause flash fire.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Water will not be effective in extinguishing a fire. Use water spray to cool fire-exposed containers and to reduce rate of burning, taking care not to spread the fire. Heat will build pressure and rupture closed storage containers. Vapors can travel to distant ignition source and flash back. Wear NIOSH approved self-contained breathing apparatus, and full protective clothing. Do not release runoff from fire control measures into waterways or sewers.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Eliminate sources of ignition. Isolate the spill area. Use non-sparking tools and equipment. Stop leak in a safe and practical manner. (If leak cannot be stopped easily and safely, advise trained emergency response personnel of the situation.). Contain and recover liquid when possible. Absorb small spills with an inert material and place in an approved chemical waste container. For large spills, dike up with inert material and transfer into same container. Do not allow to enter into drains or waterways.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Use with adequate ventilation. Avoid contact with skin, eyes and clothing. Protective Nitrile or Viton rubber gloves and apron are recommended. Use non-sparking tools and equipment. Containers should be bonded and grounded to avoid static spark during transfer. Keep away from heat and all ignition sources. Do not eat, drink or smoke in the work area. Showering after work is recommended.

STORAGE RECOMMENDATIONS:

Store out of direct sunlight in an area suitable for flammable liquids. (OSHA 29 CFR 1910.106)

Store full or partially full containers in an upright position, tightly closed in a cool (22°C), dry, well ventilated facility designed for flammable liquids. Store away from incompatible material. Protect containers from physical damage. Once pentane has been completely dispensed, containers that appear "empty" should be handled in the same manner as when they were "full".

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide general or local exhaust ventilation systems to maintain airborne concentrations below exposure levels. Regularly inspect all electrical and mechanical equipment used with or near pentane. Ground and bond metal containers to avoid static sparks.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls as appropriate to prevent skin contact. Viton or nitrile rubber offers acceptable chemical resistance. Clothing should be static free.

EYE PROTECTION:

Wear safety glasses with non-perforated sideshields for normal handling. Goggles or a full-face shield may be necessary depending on quantity of material and conditions of use.

RESPIRATORY PROTECTION:

Not required for properly ventilated areas. If there is potential for inhalation of vapor or mist, use an appropriate NIOSH approved respirator. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

The respirator must be selected based on contamination levels and use conditions found in the workplace, must not exceed the working limits of the respirator and be approved by the National Institute for Occupational Safety and Health (NIOSH) and used in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.134.

ADDITIONAL RECOMMENDATIONS:

Provide eyewash station and safety showers convenient to work areas.

EXPOSURE GUIDELINES

INGREDIENT NAME

Pentane [109-66-0]

ACGIH TLV

600 ppm TWA

OSHA PEL

1000 ppm

NIOSH

120 ppm REL
610 ppm Ceiling
1500 ppm IDLH

* = Limit established by Honeywell International Inc.

** = Workplace Environmental Exposure Level (AIHA).

*** = Biological Exposure Index (ACGIH).

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OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear, Colorless
PHYSICAL STATE:	Liquid
MOLECULAR WEIGHT:	72.17
CHEMICAL FORMULA:	C ₅ H ₁₂
ODOR:	Mild hydrocarbon.
SPECIFIC GRAVITY (water = 1.0):	0.626 @ 68°F (20°C).
SOLUBILITY IN WATER (weight %):	0.04 @ 68°F (20°C).
pH:	Not applicable
BOILING POINT:	96.8°F (36°C) @ 760 mm Hg.
FREEZING POINT:	-201.5°F (-129.7°C)
VAPOR PRESSURE:	420 mm Hg @ 68°F (20°C).
VAPOR DENSITY (air = 1.0):	2.5
EVAPORATION RATE:	~ 29 COMPARED TO: n-Butyl Acetate = 1
% VOLATILES:	~ 100
FLASH POINT:	-56.2°F (-49°C)

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable under normal conditions of use and storage. Avoid heat, ignition sources and incompatible materials.

INCOMPATIBILITIES:

Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition would be expected to produce carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Oral LD₅₀ (rat): > 2,000 mg/kg.

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Inhalation LC₅₀ (rat): 364 g/m³/4H.

Inhalation LC_{Lo} (mouse): 325 g/m³/2H.

Skin Irritation (rabbit): Mild based on primary irritation score of 0.67.

Skin Irritation (human): Clinically not irritating.

Skin Sensitization (guinea pig): Not sensitizing (Magnusson-Kligman guinea pig maximization test).

Eye Irritation (rabbit): Mild transient irritation.

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

90-Day Inhalation Toxicity Test (rat): Four groups of 20 rats were exposed to concentrations of 0, 5,000, 10,000, or 20,000 mg/m³, respectively, 6h/day, 5 days/week for 13 weeks. A NOAEL was determined to be 20,000 mg/m³ (7,000 ppm).

OTHER DATA:

Oral Developmental Toxicity Study (rat): No maternal or fetal developmental effects were produced when confirmed-mated females were dosed orally once per day with n-pentane in corn oil up to a dose level of 1,000 mg/kg from gestation days 6 through 15.

Inhalation Developmental Toxicity Study (rat): No maternal or fetal developmental effects were produced when pregnant rats were exposed to n-pentane concentrations up to 10,000 ppm (~28,600 mg/m³) 6 h/day from gestation days 6 through 15.

In Vivo Mammalian Bone Marrow Micronucleus Test (rat): No statistically significant increase in micronucleus formation or cytotoxicity in the bone marrow was produced in animals exposed by inhalation to n-pentane at levels up to 20,000 mg/m³ 6 h/day, 5 days/week for a period of 90 days.

12. ECOLOGICAL INFORMATION

No information found.

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes

If yes, the RCRA ID number is: D001

OTHER DISPOSAL CONSIDERATIONS:

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed of in a RCRA approved waste facility. Dispose of container and unused contents in accordance with all local, state and federal regulations.

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The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

Proper DOT Shipping Description: Pentanes, 3, UN 1265, II.

Reportable Quantity (RQ): None.

Label(s) Required: Class 3, Flammable Liquid.

NA Emergency Response Guidebook: Guide No. 128.

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on TSCA inventory.

OTHER TSCA ISSUES: None.

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPQ (lb)</u>
No ingredients listed in this section.		

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate. Fire.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
No ingredients listed.	

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STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT %</u>	<u>COMMENT</u>
No ingredients listed		

ADDITIONAL REGULATORY INFORMATION:

None

WHMIS CLASSIFICATION (CANADA):

Not determined.

FOREIGN INVENTORY STATUS:

Pentane is listed on the following inventories:

- Australian.
- Canadian DSL.
- Chinese.
- EINECS.
- Japanese (ENCS).
- Korean.
- Philippine (PICCS).

16. OTHER INFORMATION

CURRENT ISSUE DATE: July 10, 2001.

PREVIOUS ISSUE DATE: June, 2000.

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Update MSDS to ANSI 16 Section Format.

OTHER INFORMATION: NFPA Classification

Health: 1
Flammability: 4
Reactivity: 0