

PRODUCT NAME: PENTANE

1. Product and Company Identification

BOC India Limited,
Oxygen House
P-43 Taratala Road
Kolkata 700 0888

BOC India Limited
Unit:

TELEPHONE NUMBER: (033) 24014708-20

Customer Service Center: 1800 345 6789

PRODUCT NAME: PENTANE

CHEMICAL NAME: Pentane

COMMON NAMES/SYNONYMS: Amyl hydride

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA	TLV	
Pentane FORMULA: C ₅ H ₁₂ CAS: 109-66-0	100	1000 ppm TWA	600 ppm TWA	

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Hazards Identification

EMERGENCY OVERVIEW

Colorless, flammable gas with mild paraffinic odor. Dangerous fire and explosion hazard. Avoid heat, sparks and flames. Vapors irritating to the eyes and respiratory system. Skin contact may cause irritation and dermatitis. Inhalation of vapors may cause dizziness, headache and nausea. High concentrations may have a narcotic effect. Contents under pressure. Use and store below 52 °C.

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ROUTE OF ENTRY:

Skin Contact Yes	Skin Absorption No	Eye Contact Yes	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits Yes	Irritant Yes	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None Reported		

Carcinogenicity: -- OSHA: No

EYE EFFECTS: Vapors may cause mild irritation of the eyes.

SKIN EFFECTS: Vapors may cause mild irritation and skin rashes (dermatitis).

INGESTION EFFECTS: Accidental ingestion may cause nausea and vomiting. Aspiration of small amounts of pentane into the lungs from ingestion or subsequent vomiting can cause dangerous swelling and fluid retention in the lungs (edema).

INHALATION EFFECTS: Inhalation of vapors may cause dizziness, headache and nausea. Other symptoms may include loss of appetite, nausea, confusion, and inability to do fine work. Extremely high concentrations may paralyze the central nervous system, causing loss of consciousness and respiratory paralysis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

POTENTIAL ENVIRONMENTAL EFFECTS: Not expected to be toxic to fish and wildlife.

4. First Aid Measures

EYES: Flush eyes with water for 15 minutes. If irritation persists, seek medical attention.

SKIN: Flush skin with water for 15 minutes. If irritation persists, seek medical attention.

INGESTION: If accidental ingestion occurs, do not induce vomiting. Give 4-8 ounces of water to dilute and get immediate medical attention.

INHALATION: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and given artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PENTANE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

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5. Fire Fighting Measures

Conditions of Flammability: Flammable liquid and vapor		
Flash point: --40 °C	Method: Not Available	Autoignition Temperature: Not Available
LEL(%): 1.4	UEL(%): 7.8	
Hazardous combustion products: Carbon monoxide, carbon dioxide		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS: Flammable liquid and vapor. Rapid flame propagation and flashback possible. Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation.

EXTINGUISHING MEDIA: Water (foam), dry chemical, carbon dioxide. Water may be ineffective due to low flashpoint.

FIRE FIGHTING INSTRUCTIONS: If possible, stop the flow of liquid. Inerting the atmosphere to reduce oxygen levels may extinguish flame, allowing capping of leaking container. Do not attempt this unless specifically trained. Use non-sparking tools to close container valves. Water may be used as a spray to absorb heat and protect exposed material or structures.

Use water spray to cool surrounding containers. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions.

Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

6. Accidental Release Measures

Immediately extinguish all ignition sources. No smoking, flares, flames or sparks in hazard area. Evacuate all personnel from affected area. Use appropriate protective equipment (See Section 8). Increase ventilation to prevent build up of a flammable/explosive atmosphere. Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage

Electrical Classifications: Class 1, Group not specified.

Earth-ground and bond all lines and equipment associated with the system. All equipment should be non-sparking or explosion proof. Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

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Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C.

Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING" signs in use and storage area. There should be no source for accidental ignition in areas where this product is being used or stored. Outside or detached storage is preferred.

Never carry a compressed gas cylinder of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS: Use local exhaust and general ventilation systems to prevent build up of flammable concentrations. Small quantities can be handled in forced ventilation hoods. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

EYE/FACE PROTECTION: Safety goggles or glasses.

SKIN PROTECTION: Use butyl rubber, PVC or polyethylene gloves.

RESPIRATORY PROTECTION: For emergency release use a positive pressure NIOSH approved air- supplying respirator systems (SCBA or airline/escape bottle) using at a minimum Grade D air.

OTHER/GENERAL PROTECTION: Safety shoes.

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Liquid	
Vapor pressure at 100 °F	: 15	Psia
Vapor density (Air = 1)	: Not Available	
Evaporation point	: Not Available	
Boiling point	: 36	°C
Freezing point	: Not Available	
Ph	: Not Available	
Specific gravity @21 °C	: 2.48	1 atm
Oil/water partition coefficient	: Not Available	
Solubility (H2O)	: Negligible	
Odor threshold	: Not Available	
Odor and appearance	: Colorless liquid and vapor with mild paraffinic odor.	

10. Stability and Reactivity

STABILITY: Stable

INCOMPATIBLE MATERIALS/CONDITIONS: Incompatible with oxygen and other oxidizers. Avoid heat, sparks, and flames.

HAZARDOUS DECOMPOSITION PRODUCTS: None.

HAZARDOUS POLYMERIZATION: Will not occur.

11. Toxicological Information

INHALATION: The ACGIH TLV of 600 ppm is recommended to minimize potential for narcotic and irritant effects.

SKIN AND EYE: May cause irritation.

OTHER: Chronic exposure to very high concentrations may cause polyneuropathy as indicated by reports of polyneuropathy in workers. As hexane was also present in the solvent mixtures, it is unclear which solvent in the mixture is the causative agent.

12. Ecological Information

Product does not contain Class I or Class II ozone depleting substances. See Section 3 for ecotoxicity information. Calculated BCF values for n-pentane of 1.90 and 2.35 indicate a low potential for bioconcentration in aquatic organisms.

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13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	India	
PROPER SHIPPING NAME:	Pentanes	
HAZARD CLASS:	3	
IDENTIFICATION NUMBER:	UN 1265	
SHIPPING LABEL:	FLAMMABLE LIQUID	

Packing Group: I

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

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