

Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name : Heptane
Recommended Uses : Industrial Solvent.

Other names : Special boiling point spirit HEPTANES
Product Code : Q1352

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2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE. DANGEROUS GOODS.
Classified as hazardous according to the criteria of NOHSC, and as Dangerous Goods according to the Australian Dangerous Goods Code.

Symbol(s) : F Highly flammable.
Xn Harmful.
N Dangerous for the environment.

R-phrase(s) : R11 Highly flammable.
R38 Irritating to skin.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s) : S9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition - No smoking.
S23 Do not breathe vapour.
S24 Avoid contact with skin.
S33 Take precautionary measures against static discharges.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
S 2 Keep out of the reach of children.

Health Hazards : Vapours may cause drowsiness and dizziness. Irritating to skin. Harmful: may cause lung damage if swallowed. Possibility

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- of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Central nervous system (CNS).
- Signs and Symptoms** : Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
- Aggravated Medical Condition** : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.
- Safety Hazards** : Highly flammable. In use, may form flammable/explosive vapour-air mixture. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
- Environmental Hazards** : Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
- SUSDP Schedule** : 5

3. COMPOSITION/INFORMATION ON INGREDIENTS

- Material Formal Name** : Naphtha (petroleum), hydrotreated light
CAS No. : 64742-49-0
INDEX No. : 649-328-00-1
EINECS No. : 265-151-9

Hazardous Components

Chemical Name	CAS	EINECS	Symbol(s)	R-phrases(s)	Conc.
n-Heptane	142-82-5	205-563-8	F, Xn, N	R11; R38; R50/53; R65; R67	38.00 %W

- Additional Information** : Refer to chapter 16 for full text of EC R-phrases.

4. FIRST AID MEASURES

- General Information** : In general no treatment is necessary, however, obtain medical advice.
- Inhalation** : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
- Eye Contact** : Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist, transport to the nearest medical facility for additional treatment.
- Ingestion** : If swallowed, do not induce vomiting; transport to nearest

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Advice to Physician : medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Causes central nervous system depression. Dermatitis may result from prolonged or repeated exposure. Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific Hazards : Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Extinguishing Media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

Unsuitable Extinguishing Media : Do not use water in a jet.

Protective Equipment for Firefighters : Wear full protective clothing and self-contained breathing apparatus.

Additional Advice : Keep adjacent containers cool by spraying with water.

Hazchem Code : 3[Y]E - For fire fighting, use foam (alcohol resistant foam may be required). Risk of explosion. Breathing apparatus, firefighting gear and chemically impervious protective gloves should be worn. Prevent spillage from entering drains or watercourses. Evacuation of people from the neighbourhood of an incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

Protective measures : Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Clean Up Methods : For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove

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contaminated soil and dispose of safely.
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Additional Advice : See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid contact with skin, eyes, and clothing. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Handle and open container with care in a well-ventilated area. Ventilate workplace in such a way that the Occupational Exposure Limit (OEL) is not exceeded. Do not empty into drains. Avoid handling above its flashpoint otherwise the product will form flammable/explosive vapour-air mixtures
- Storage** : Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Storage Temperature: Ambient. Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment.
- Product Transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
- Recommended Materials** : For containers, or container linings use mild steel, stainless steel. For container paints, use epoxy paint, zinc silicate paint.
- Unsuitable Materials** : Avoid prolonged contact with natural, butyl or nitrile rubbers.
- Container Advice** : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

In the absence of occupational exposure standards for this product, it is recommended that the following are adopted.

Material	Source	Type	ppm	mg/m3	Notation
RCP Dearomatised Heptane fraction	HSPA OELs	TWA (8 h)		1,400 mg/m3	
n-Heptane	AU OEL	TWA	400 ppm	1,640 mg/m3	
	AU OEL	STEL	500 ppm	2,050 mg/m3	

Additional Information : Wash hands before eating, drinking, smoking and using the toilet.

Biological Exposure Index (BEI) - See reference for full details

No biological limit allocated.

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN141. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection:
Longer term protection: Nitrile rubber gloves
Incidental contact/Splash protection: PVC or neoprene rubber gloves
- Eye Protection** : Chemical splash goggles (chemical monogoggles).
- Protective Clothing** : Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical

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- resistant.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha-slc.gov/dts/sltc/methods/toc.html> Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <http://www.hsl.gov.uk/search.htm> Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of analytical Methods <http://www.cdc.gov/niosh/nmam/nmammenu.html>
- Environmental Exposure Controls** : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Colourless Liquid.
 Odour : Paraffinic
 pH : Not applicable.
 Boiling point : 90 - 100 °C / 194 - 212 °F
 Pour point : Typical -90 °C / -130 °F
 Flash point : Typical -5 °C / 23 °F (IP 170)
 Explosion / Flammability limits in air : 1 - 7 % (V)
 Auto-ignition temperature : 246 - 260 °C / 475 - 500 °F (ASTM E-659)
 Vapour pressure : 6 - 7.7 kPa at 20 °C / 68 °F
 Specific gravity : 0.7 - 0.71 at 20 °C / 68 °F
 Density : Typical 713 kg/m³ at 15 °C / 59 °F (ASTM D-4052)
 Water solubility : 2.6 mg/l at 25 °C / 77 °F Immiscible.
 Solubility in other solvents : Hydrocarbon solvent(s) Miscible.
 Vapour density (air=1) : 3.52
 Volatile organic carbon content : 84 % (EC/1999/13)

10. STABILITY AND REACTIVITY

- Stability** : Stable under normal conditions of use.
Conditions to Avoid : Avoid heat, sparks, open flames and other ignition sources.
Materials to Avoid : Strong oxidising agents.
Hazardous Decomposition Products : Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

- Basis for Assessment** : Information given is based on product testing, and/or similar products, and/or components.

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Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 >2000 mg/kg , Rat Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 >2000 mg/kg , Rat
Acute Inhalation Toxicity	:	Expected to be of low toxicity: LC50 >20 mg/l / 4 hours, Rat High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin Irritation	:	Irritating to skin.
Eye Irritation	:	Expected to be non-irritating to eyes.
Respiratory Irritation	:	Not expected to be a respiratory irritant.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Central nervous system: repeated exposure affects the nervous system. Kidney: caused kidney effects in male rats which are not considered relevant to humans
Mutagenicity	:	No evidence of mutagenic activity.
Carcinogenicity	:	Not expected to be carcinogenic.
Reproductive and Developmental Toxicity	:	Not expected to be a developmental toxicant. Not expected to impair fertility.

12. ECOLOGICAL INFORMATION

Acute Toxicity	:	
Fish	:	Expected to be toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
Aquatic Invertebrates	:	Expected to be toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
Algae	:	Expected to be toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
Microorganisms	:	Expected to be toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
Mobility	:	Floats on water. Adsorbs to soil and has low mobility.
Persistence/degradability	:	Readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.
Bioaccumulation	:	Has the potential to bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Container Disposal	:	Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

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UN number 1206
Proper shipping name HEPTANES
Class 3
Packing group II
Hazchem Code 3[Y]E

IMDG

Identification number UN 1206
Proper shipping name HEPTANES
Class / Division 3
Packing group II
Marine pollutant: No

IATA (Country variations may apply)

UN No. : 1206
Proper shipping name : Heptanes
Class / Division : 3
Packing group : II

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

SUSDP Schedule : 5
AICS : Listed.
DSL : Listed.
INV (CN) : Listed.
TSCA : Listed.
EINECS : Listed. 265-151-9
KECI (KR) : Listed. KE-25623
PICCS (PH) : Listed.

Other Information : 94/69/EC (21st ATP). The benzene content of this product is less than 0.1%. Nota P applies. Classification and labelling as carcinogen (R45) is not required.

16. OTHER INFORMATION

R-phrases(s)

R11 Highly flammable.
R38 Irritating to skin.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65 Harmful: May cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

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- MSDS Version Number** : 1.4
- MSDS Effective Date** : 21.08.2006
- MSDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation** :
- Uses and Restrictions** : Industrial Solvent.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product
- Disclaimer** : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.