



Infosafe No™	1CH4W	Issue Date : July 2016	RE-ISSUED by CHEMSUPP
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Product Name : **PENTAN-1-OL**

Classified as hazardous

1. Identification

GHS Product Identifier	PENTAN-1-OL	
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)	
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia	
Telephone/Fax Number	Tel: (08) 8440-2000 Fax: (08) 8440-2001	
Recommended use of the chemical and restrictions on use	Synthetic flavour; diluent for hydraulic fluids; intermediate for n-pentyl acetate and other esters; intermediate for dithiophosphate esters (lubricating oil additive and hydraulic fluid additive); solvent in the manufacturing of petroleum additives, urea-formaldehyde plastics processing, organic chemical manufacturing and raw material for pharmaceutical preparations; solvents for resins and gums; lubricants; frothers in ore-flotation process; plasticizers and solvents; corrosion inhibitors and antioxidants and laboratory reagent.	
Other Names	<u>Name</u>	<u>Product Code</u>
	1-Pentanol, Pentyl alcohol, n-Butyl carbinol, n-Amyl alcohol PENTAN-1-OL LR	PL049
Other Information	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.	

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Eye Damage/Irritation: Category 2A Flammable Liquids: Category 3 Acute Toxicity - Inhalation: Category 4 Skin Corrosion/Irritation: Category 2 Specific target organ toxicity - Single Exposure Category 3 (respiratory tract irritation)
Signal Word (s)	WARNING
Hazard Statement (s)	H226 Flammable liquid and vapour. H315 Causes skin irritation. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation.
Pictogram (s)	Flame, Exclamation mark



Precautionary statement – Prevention	P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ventilating/lighting/.../equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
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Precautionary statement – Response	Swallowed P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Skin P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P332+P313 If skin irritation occurs: Get medical advice/attention. P363 Wash contaminated clothing before reuse. Inhaled P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician. Eyes P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.
Precautionary statement – Storage	Fire P370+P378 In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam for extinction. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Chemical Characterization	Liquid				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Pentan-1-ol	71-41-0	100 %		

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice.
Skin	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products	Carbon dioxide and carbon monoxide may form when heated to decomposition. Can form aldehydes burning in limited air.
Specific Methods	Caution: Use of water spray when fighting fire may be inefficient. Small fire: Use foam, dry chemical, CO2 or water spray. Large fire: Use foam, fog or water spray - Do not use water jets. If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.
Specific hazards arising from the chemical	HIGHLY FLAMMABLE: These liquids have a low flashpoint - Will be easily ignited by heat, sparks or flame. Vapours will form explosive mixtures with air. Vapours may travel to source of ignition and flash back. Vapours is heavier than air and will collect in low or confined areas (drains, basements, tanks). Liquids is lighter than water. Containers may explode when heated. Fire will produce irritating, poisonous and/or corrosive gases. Vapours from runoff may create explosion hazard.
Hazchem Code	•3Y



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Precautions in connection with Fire Wear SCBA and fully-encapsulating, gas-tight suit when handling these substances. Structural firefighter's uniform is NOT effective for these materials.

6. Accidental release measures

Spills & Disposal ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used when handling the product must be earthed. Do not touch or walk through spilled material. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours - Water spray may be used to knock down or divert vapour clouds. Absorb with earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material and place it into loosely-covered metal or plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

Personal Precautions Evacuate the area of all non-essential personnel. Avoid inhalation, contact with skin, eyes and clothing.

Personal Protection Wear protective clothing specified for normal operations (see Section 8)

Clean-up Methods - Small Spillages Absorb or contain liquid with sand, earth or spill control material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.

7. Handling and storage

Precautions for Safe Handling Avoid contact with eyes, skin, and clothing. Avoid breathing gas/fumes/vapour/spray/mist. Do not ingest. If ingested, seek medical advice immediately and show the container or the label. Avoid prolonged or repeated exposure. Wash thoroughly after handling. Wear suitable protective clothing and safety glasses. Remove contaminated clothing and wash before reuse. Ensure good ventilation/exhaustion at the workplace. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from heat and all ignition sources - Do not smoke. Fumes can combine with air to form an explosive mixture. Take precautions against static discharge. All electrical equipment must be flameproofed. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep away from incompatibles such as oxidizing agents, acids.

Conditions for safe storage, including any incompatibilities Store in cool place and out of direct sunlight. Store in well ventilated area. Store away from sources of heat or ignition. Store away from oxidizing agents. Keep containers securely sealed and protected against physical damage. Keep container tightly sealed. Keep well protected from direct sunlight and moisture. Protect against physical damage. Store in a cool, dry, well-ventilated location, away from any area where the fire hazard may be acute. Fireproof. Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat and all sources of ignition. Separate from incompatibles, i.e. strong oxidants, alkali metals and alkaline-earth metals.

Storage Regulations Refer Australian Standard AS 1940-2004 'The storage and handling of flammable and combustible liquids'.

Storage Temperatures Store at room temperature (15 to 25 °C recommended).

Unsuitable Materials Various plastics, rubber.

8. Exposure controls/personal protection

Other Exposure Information A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by SafeWork Australia for this product. There is a blanket limit of 10 mg/m³ for mists when limits have not otherwise been established.

Appropriate engineering controls In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Respiratory Protection Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.

Eye Protection The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.



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Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Vinyl gloves. Neoprene gloves
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
Body Protection	Flame retardant protective clothing. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Liquid
Appearance	Colourless liquid.
Odour	Pleasant, sweetish, mild, characteristic alcohol or fusel-like odour.
Melting Point	-79 °C
Boiling Point	138 °C
Solubility in Water	Slightly soluble (25 g/L @ 25 °C).
Solubility in Organic Solvents	Miscible with alcohol, benzene and ether. Soluble in acetone. Miscible with most organic solvents.
Specific Gravity	0.8110 - 0.8148
pH	7 (25g/l, H ₂ O)
Vapour Pressure	1.5 mmHg (0.4 kPa) 20 °C; 2.2 mm Hg @ 25 °C.
Vapour Density (Air=1)	3.04 (air = 1)
Evaporation Rate	0.18 - 0.23 (butyl acetate=1)
Odour Threshold	0.1 ppm
Viscosity	38 SUS @ 37.8 °C
Volatile Component	100% (w/w).
Partition Coefficient: n-octanol/water	log P(o/w): 1-3; low Kow= 1.51.
Surface Tension	25.5 dynes/cm at 20 °C.
Flash Point	33 °C - 49 °C (CC); 43 °C - 51 °C (OC).
Flammability	Flammable liquid.
Auto-ignition Temperature	300 °C
Flammable Limits - Lower	1.2 vol%
Flammable Limits - Upper	8 vol%
Explosion Properties	Explosion hazard: moderate, when exposed to flame. Heating will cause rise in pressure with risk of bursting. Above 33 °C explosive vapour/air mixtures may be formed.
Molecular Weight	88.15
Other Information	Taste: Burning, pungent, repulsive.

10. Stability and reactivity

Chemical Stability	Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid	Heat, ignition sources (flames, sparks), moisture, confined spaces, incompatible materials.
Incompatible Materials	Oxidizing agents, strong inorganic acids (concentrated sulfuric and nitric acid), strong bases, alkali metals, alkaline earth metals, hydrogen trisulfide, halogens, oxygen, isocyanates, aliphatic amines.



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Hazardous Decomposition Products	Carbon dioxide and carbon monoxide may form when heated to decomposition.
Possibility of hazardous reactions	Reactive with oxidizing agents, acids. Attacks many alkaline and earth alkaline metals forming flammable/explosive gas.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 370 mg/kg.
Acute Toxicity - Dermal Ingestion	LD50 (rabbit): 1306 mg/kg. Causes gastrointestinal tract irritation with nausea, vomiting, diarrhea. Vomiting may cause aspiration of material into the lungs and result in chemical pneumonitis, which may be fatal. Ingestion of large amounts can affect behaviour/central nervous system/nervous system (symptoms similar to acute inhalation), liver, kidneys (abnormal renal function, glycosuria, myoglobinuria, acute renal failure, acute tubular necrosis).
Inhalation	Causes respiratory tract irritation, stinging sensation of the eyes producing lacrimation, hyperemia of the conjunctiva without significant corneal injury, nasal discomfort and discharge, chest pain, nausea, vomiting. Inhalation of high concentrations of vapour can also affect the brain, behaviour/central nervous system/nervous system, cardiovascular system, vision, respiration, liver, kidneys, and cause vertigo, delirium, ataxia, sedation, dizziness, drowsiness, giddiness, lightheadedness, headache, spastic paralysis, dyspnoea, coughing, acute pulmonary oedema, respiratory depression, hypotension, cardiac dysrhythmias, double vision, diplopia, preconvulsive movement, iritis, deafness, acute renal failure, acute tubular necrosis. In severe cases, inhalation may be fatal.
Skin	Brief contact is not irritating. Prolonged contact may cause moderate to severe irritation with pain, redness, swelling, possible tissue damage and dermatitis. Suspected to be a systemic poison by absorption through skin; systemic effects paralleling ingestion may occur.
Eye	Vapours cause moderate to severe eye irritation. Symptoms may include lacrimation (tearing), pain, redness, swelling. Liquid contact causes severe irritation and possible burns. May cause chemical conjunctivitis and corneal damage.
Carcinogenicity	Not listed in the IARC Monographs.
Chronic Effects	Prolonged or repeated inhalation may result in pulmonary edema and lung, liver and kidney injury. Prolonged or repeated skin contact may cause dermatitis.
Mutagenicity	Bacterial mutagenicity: Ames test: negative.
Human Effects	Alcohols may interact synergistically with chlorinated solvents (e.g. carbon tetrachloride), aromatic hydrocarbons (e.g. xylene) or dithiocarbamates (e.g. disulfiram).

12. Ecological information

Ecotoxicity	Toxic for aquatic organisms. Risk of formation of explosive vapours above water surface.
Persistence and degradability	Biological degradability: good. BOD = 46 % of ThOD /5 d; COD = 67 % of ThOD; ThOD = 2.727 g/g. Biochemical Oxygen Demand (BOD) 1278 mg/g (5d) Chemical Oxygen Demand (COD) 1814 mg/g
Mobility	Distribution: log P(o/w): 1.51 @ 25°C.
Environmental Fate	When released into the soil, this material is expected to leach into groundwater and may biodegrade to a moderate extent. When released into water, this material may biodegrade and evaporate to a moderate extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals and may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material is expected to have a half-life between 1 and 10 days.
Bioaccumulative Potential	This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate.
Environmental Protection	Do not allow to enter waters, waste water, or soil!
Acute Toxicity - Fish	Brachydanio rerio LC50: 530 mg/l; 96 h.
Acute Toxicity - Daphnia	Daphnia EC0: 440 mg/l; 48 h.



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13. Disposal considerations

Disposal Considerations Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information Dangerous Goods of Class 3 Flammable Liquids, are incompatible in a placard load with any of the following: - Class 1, Class 2.1, if both the Class 3 and Class 2.1, dangerous goods are in bulk, Class 2.3, Class 4.2, Class 5, Class 6, if the Class 3 dangerous goods are nitromethane and Class 7.

U.N. Number 1105

UN proper shipping name PENTANOLS - (Pentan-1-ol)

Transport hazard class(es) 3

Hazchem Code •3Y

Packaging Method 3.8.3RT1

Packing Group III

EPG Number 3A1

IERG Number 16

15. Regulatory information

Regulatory Information Listed in the Australian Inventory of Chemical Substances (AICS).

Poisons Schedule Not Scheduled

16. Other Information

Literature References 'Standard for the Uniform Scheduling of Medicines and Poisons No. 6', Commonwealth of Australia, February 2015.
Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.
Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010.
Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.
Safe Work Australia, 'Hazardous Substances Information System, 2005'.
Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.
Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]'.
Contact Person/Point Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**
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Empirical Formula & Structural Formula Empirical Formula: C₅H₁₂O.
Structural Formula: CH₃(CH₂)₃CH₂OH.
...End Of MSDS...

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