



Infosafe No™	1CHMF	Issue Date : October 2018	RE-ISSUED by CHEMSUPP
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Product Name : **PIPERIDINE**

Classified as hazardous

1. Identification

GHS Product Identifier	PIPERIDINE		
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		
(24 hour a day available)	CHEMCALL: 1800 127 406 (Australia) / +64-4-917-9888 (International)		
Recommended use of the chemical and restrictions on use	Solvent and intermediate, curing agent for rubber and epoxy resins, catalyst for condensation reactions, ingredient in oils and fuels, complexing agent and laboratory reagent.		
Other Names	<u>Name</u>		<u>Product Code</u>

PIPERIDINE LR
Hexahydropyridine
Pentamethyleneamine
Pentamethyleneimine

PL299

Other Information

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	Flammable Liquids: Category 2 Acute Toxicity - Dermal: Category 3 Acute Toxicity - Inhalation: Category 3 Skin Corrosion/Irritation: Category 2 Acute Toxicity - Oral: Category 4
Signal Word (s)	DANGER
Hazard Statement (s)	H225 Highly flammable liquid and vapour. H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage. H331 Toxic if inhaled.
Pictogram (s)	Corrosion, Flame, Skull and crossbones

**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.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.



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Precautionary statement – Response	P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P361 Remove/Take off immediately all contaminated clothing. P363 Wash contaminated clothing before reuse. 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. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P370 In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.
Precautionary statement – Storage	P403+P233+P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Precautionary statement – Disposal	P405 Store locked up. P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Chemical Characterization	Liquid				
Ingredients	Name	CAS	Proportion	Hazard Symbol	Risk Phrase
	Piperidine	110-89-4	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. Consult a physician.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
Skin	Immediately remove contaminated clothing and wash affected area with water for at least 15 minutes. Ensure contaminated clothing is washed before re-use. Seek medical advice /attention depending on the severity.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
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	Oxides of carbon and nitrogen.
Specific Methods	Small fire: Use dry chemical, CO2 or water spray. Large fire: Use water spray, fog or foam - Do NOT use water jets. If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside the containers.
Specific hazards arising from the chemical	May be ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours may travel to source of ignition and flash back. Most vapours are heavier than air and will spread along the ground and collect in low or confined areas (drains, basements, tanks). Many liquids are lighter than water. Containers may explode when heated. Fire may produce irritating, poisonous or corrosive gases. Vapours from run-off may create an explosion hazard.
Hazchem Code	2WE
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 25m. All equipment in handling this product must be earthed. Do NOT touch or walk through this product. Stop leak if safe to
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Personal Precautions	do so. Prevent entry into waterways, drains, confined areas. Vapour suppressing foam may be used to control vapours. Water spray may be used to knock down or divert vapours.
Personal Protection	Absorb spill with earth, sand or other non-combustible material. Use clean, non-sparking tools to collect material and place it in loosely-covered metal or plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL. Evacuate the area of all non-essential personnel. Remove ignition sources Avoid inhalation, contact with skin, eyes and clothing.
Clean-up Methods - Small Spillages	Wear protective clothing specified for normal operations (see Section 8)
Environmental Precautions	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.
	Prevent from entering into drains, ditches, rivers or the sea.

7. Handling and storage

Handling and Storage	Segregate from acids and acid forming substances.
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 closed at all times.
Storage Regulations	Refer Australian Standard AS 3780-1994 'The storage and handling of corrosive substances'. Refer Australian Standard AS 1940-2017 'The storage and handling of flammable and combustible liquids'.

8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	Piperidine			3.5	1	
Other Exposure Information	These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity. A time weighted average (TWA) has been established for Acetonitrile (Safe Work Australia) of 3.5 mg/m3, (1 ppm). The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. Note: Absorption through the skin may be a significant source of exposure.					
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. These methods should be used in preference to personal protective equipment. Provide sufficient ventilation. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required. Refer to AS 1940-The storage and handling of flammable and combustible liquids and AS 2430-Explosive gas atmospheres for further information concerning ventilation requirements.					
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.					
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.					
Hand Protection	Hand protection should comply with AS 2161 Industrial Safety Gloves and Mittens (Excluding Electrical and Medical Gloves).					
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New					



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Footwear	Zealand or other approved standards. 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	Wear suitable protective clothing to prevent skin contact. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Launder contaminated clothing before re-use. Ensure a high level of personal hygiene is maintained when using this product. Always wash hands before eating, drinking, smoking or using the toilet.

9. Physical and chemical properties

Form	Liquid
Appearance	Colourless liquid.
Odour	Amine like.
Melting Point	-11.5 °C
Boiling Point	106-107 °C
Solubility in Water	Miscible, 20 °C
Solubility in Organic Solvents	Soluble in alcohol and benzene.
Specific Gravity	0.861 g/cm ³
pH	pH 12.6 (100 g/l, 20 °C)
Vapour Pressure	34 mbar (20 °C)
Vapour Density (Air=1)	3.0
Partition Coefficient: n-octanol/water	Log p(o/w): 0.67 25 °C
Flash Point	16 °C
Flammability	Flammable liquid. Keep away from heat, sparks or naked flames. Use flameproof equipment and fittings to prevent flammability risk. Electrically link and ground metal containers for transfer of the product to prevent accumulation of static electricity. Ensure adequate ventilation to prevent an explosive vapour-air mixture. Vapours will travel considerable distances to sources of ignition.
Auto-Ignition Temperature	320 °C
Flammable Limits - Lower	1.5 Vol%
Flammable Limits - Upper	10.3 Vol%
Molecular Weight	85.15

10. Stability and reactivity

Chemical Stability	Stable under normal use conditons.
Conditions to Avoid	Heat, direct sunlight, open flames or other sources of ignition.
Incompatible Materials	Strong oxidisers, acids, acid chlorides, and acid anhydrides.
Hazardous Decomposition Products	Oxides of nitrogen and carbon, including highly toxic nitric fumes.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Dermal	LC50 (rabbit): 275 mg/kg
Acute Toxicity - Inhalation	LC50 (rat): 4.8 mg/l/4h
Ingestion	Harmful if swallowed.



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Inhalation	Toxic by inhalation. May cause irritation to the respiratory tract and mucous membrane, burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, spasm, inflammation and edema of the larynx and bronchii, chemical pneumonitis, pulmonary edema, unconsciousness and death.
Skin	Causes burns. Toxic in contact with skin.
Eye	Causes burns.
Carcinogenicity	No evidence of carcinogenic properties.
Reproductive Toxicity	Animal studies gave no indication of a fertility impairing effect.
Mutagenicity	No evidence of mutagenic effects.

12. Ecological information

Persistence and degradability	Readily biodegradable.
Mobility	This substance will not evaporate into the atmosphere from the water surface. Absorption to solid soil phase is not expected.
Bioaccumulative Potential	No bioaccumulation is to be expected (log P(o/w) <1.0).
Other Adverse Effects	BOD of the ThOD: 67%/14d for activated sludge
Acute Toxicity - Fish	LC50 (Leuciscus idus): 46-100 mg/l/96h
Acute Toxicity - Other Organisms	LC50 (Activated sludge): >19995 mg/l/30 min
Other Information	Due to the pH value of the product, neutralization is generally required before discharging sewage into treatment plants.

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.
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14. Transport information

Transport Information	Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.
U.N. Number	2401
UN proper shipping name	PIPERIDINE
Transport hazard class(es)	8
Sub.Risk	3
Hazchem Code	2WE
Packaging Method	3.8.3
Packing Group	I
EPG Number	3A3
IERG Number	19

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule	S4

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. 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
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Safety Data Sheet

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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) 3rd Edition]'.

Contact

Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**

Person/Point

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Empirical Formula & Structural Formula

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