



## Material Safety Data Sheet

Methyl Isobutyl Ketone

Version 1.

Effective Date May 2013

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

<b>Material Name</b>	:	<b>Methyl Isobutyl Ketone</b>
<b>Recommended Uses</b>	:	Use as a solvent only in industrial manufacturing processes.
<b>Other names</b>	:	Hexanone METHYL ISOBUTYL KETONE
<b>Product Code</b>	:	S1215
<b>Supplier</b>	:	Glendale Packaging Pty Ltd 1/75 Newton Road Wetherill Park 2164 P.O. Box 7002 Wetherill Park BC 1851 NSW Australia ABN: 74 114 020 450
<b>Telephone</b>	:	Tel +61 2 9756 2315
<b>Fax</b>	:	Fax +61 2 9756 2316
<b>Emergency Telephone Number</b>	:	+61 2 9756 2315

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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.

<b>Symbol(s)</b>	:	F Highly flammable. Xn Harmful.
<b>R-phrases(s)</b>	:	R11 Highly flammable. R20 Harmful by inhalation. R36/37 Irritating to eyes and respiratory system. R66 Repeated exposure may cause skin dryness or cracking.
<b>S-phrases(s)</b>	:	S9 Keep container in a well-ventilated place. S16 Keep away from sources of ignition - No smoking. S29 Do not empty into drains. S 2 Keep out of the reach of children.
<b>Health Hazards</b>	:	Harmful by inhalation. Irritating to eyes and respiratory system. Vapours may cause drowsiness and dizziness. Repeated exposure may cause skin dryness or cracking.
<b>Signs and Symptoms</b>	:	Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Material Formal Name** : 4-methylpentan-2-one  
**CAS No.** : 108-10-1  
**INDEX No.** : 606-004-00-4  
**EINECS No.** : 203-550-1

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

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**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. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

**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 medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Advice to Physician** : Causes central nervous system depression. Consult a Poison Control Centre for guidance.

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**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,



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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.

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### 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 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. Monitor area with combustible gas indicator.
- Clean Up Methods** : 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. 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 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.

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### 7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing of or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For 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 inhaling vapour and/or mists. Avoid contact with the skin. Electrostatic charges may be generated during pumping.



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- Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\leq 10$  m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames. Do Not smoke. Remove ignition sources. Avoid sparks. Handling Temperature: Ambient.
- Storage** : Keep away from aerosols, flammables, oxidizing agents, corrosives and from products harmful or toxic to man or to the environment. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. Storage Temperature: Ambient.
- Product Transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
- Unsuitable Materials** : For containers, or container linings avoid plastics, aluminium.; For lines and fittings, avoid natural, neoprene, 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.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Occupational Exposure Limits

Material	Source	Type	ppm	mg/m <sup>3</sup>	Notation
Methyl Isobutyl Ketone	AU OEL	TWA	50 ppm	205 mg/m <sup>3</sup>	
	AU OEL	STEL	75 ppm	307 mg/m <sup>3</sup>	

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

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

Material	Determinant	Sampling time	BEI	Reference
Methyl Isobutyl Ketone	MIBK in urine	End of shift	2 mg/l	ACGIH (2003)

- 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

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<b>Personal Protective Equipment</b>	:	emergency use.
<b>Respiratory Protection</b>	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
<b>Hand Protection</b>	:	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.
<b>Eye Protection</b>	:	Longer term protection: Butyl rubber. Incidental contact/Splash protection: Natural rubber. Neoprene rubber. Nitrile rubber.
<b>Protective Clothing</b>	:	Chemical splash goggles (chemical monogoggles).
<b>Monitoring Methods</b>	:	Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.
<b>Environmental Exposure Controls</b>	:	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. 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 <a href="http://www.cdc.gov/niosh/nmam/nmammenu.html">http://www.cdc.gov/niosh/nmam/nmammenu.html</a> Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <a href="http://www.osha-slc.gov/dts/sltc/methods/toc.html">http://www.osha-slc.gov/dts/sltc/methods/toc.html</a> Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <a href="http://www.hsl.gov.uk/search.htm">http://www.hsl.gov.uk/search.htm</a>

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	:	Clear Liquid
Odour	:	Characteristic
pH	:	Not applicable.
Boiling point	:	114 - 117 °C / 237 - 243 °F
Melting / freezing point	:	-85 °C / -121 °F
Flash point	:	14 °C / 57 °F(Abel)
Explosion / Flammability limits in air	:	1.3 - 8 %(V)
Auto-ignition temperature	:	460 °C / 860 °F(ASTM E-659)
Vapour pressure	:	1.9 kPa at 20 °C / 68 °F
Specific gravity	:	0.799 - 0.802 at 20 °C / 68 °F



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Density	: 799 - 802 kg/m <sup>3</sup> at 20 °C / 68 °F (ASTM D-4052)
Water solubility	: 20 g/l at 20 °C / 68 °F
Solubility in other solvents	: Data not available.
Vapour density (air=1)	: 3.5 at 20 °C / 68 °F
Volatile organic carbon content	: 71.9 % (EC/1999/13)
Evaporation rate (nBuAc=1)	: 1.6 (ASTM D 3539, nBuAc=1)

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### 10. STABILITY AND REACTIVITY

<b>Stability</b>	: Stable under normal conditions of use. Reacts with strong oxidising agents.
<b>Conditions to Avoid</b>	: Avoid heat, sparks, open flames and other ignition sources.
<b>Materials to Avoid</b>	: Strong oxidising agents.
<b>Hazardous Decomposition Products</b>	: 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.

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### 11. TOXICOLOGICAL INFORMATION

<b>Basis for Assessment</b>	: Information given is based on product testing.
<b>Acute Oral Toxicity</b>	: Low toxicity: LD50 >2000 mg/kg , Rat
<b>Acute Dermal Toxicity</b>	: Low toxicity: LD50 >2000 mg/kg , Rabbit
<b>Acute Inhalation Toxicity</b>	: Moderately toxic: LC50 >2 - 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.
<b>Skin Irritation</b>	: Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Not irritating to skin.
<b>Eye Irritation</b>	: Moderately irritating to eyes. Classified as irritant.
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation to the respiratory system.
<b>Sensitisation</b>	: Not expected to be a skin sensitiser.
<b>Repeated Dose Toxicity</b>	: Kidney: caused kidney effects in male rats which are not considered relevant to humans
<b>Mutagenicity</b>	: Not mutagenic.
<b>Carcinogenicity</b>	: Not expected to be carcinogenic.
<b>Reproductive and Developmental Toxicity</b>	: Not expected to impair fertility.
<b>Additional Information</b>	: Exposure may enhance the toxicity of other materials

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### 12. ECOLOGICAL INFORMATION

<b>Acute Toxicity</b> <b>Fish</b>	: Low toxicity: LC/EC/IC50 > 100 mg/l
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<b>Aquatic Invertebrates</b>	:	Low toxicity: LC/EC/IC50 > 100 mg/l
<b>Algae</b>	:	Low toxicity: LC/EC/IC50 > 100 mg/l
<b>Microorganisms</b>	:	Low toxicity: LC/EC/IC50 > 100 mg/l
<b>Mobility</b>	:	Floats on water.
<b>Persistence/degradability</b>	:	Readily biodegradable meeting the 10 day window criterion. Oxidises rapidly by photo-chemical reactions in air.
<b>Bioaccumulation</b>	:	Not expected to bioaccumulate significantly.

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### 13. DISPOSAL CONSIDERATIONS

<b>Material Disposal</b>	:	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.
<b>Container Disposal</b>	:	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.
<b>Local Legislation</b>	:	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.

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### 14. TRANSPORT INFORMATION

#### ADG

UN number	1245
Proper shipping name	METHYL ISOBUTYL KETONE
Class	3
Packing group	II
Hazchem Code	3[Y]E

#### IMDG

Identification number	UN 1245
Proper shipping name	METHYL ISOBUTYL KETONE
Class / Division	3
Packing group	II
Marine pollutant:	No

#### IATA (Country variations may apply)

UN No.	:	1245
Proper shipping name	:	Methyl isobutyl ketone
Class / Division	:	3
Packing group	:	II



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### 15. REGULATORY INFORMATION

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

<b>SUSDP Schedule</b>	:	5	
AICS	:	Listed.	
DSL	:	Listed.	
INV (CN)	:	Listed.	
ENCS (JP)	:	Listed.	(2)-542
TSCA	:	Listed.	
EINECS	:	Listed.	203-550-1
KECI (KR)	:	Listed.	KE-24725
PICCS (PH)	:	Listed.	

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### 16. OTHER INFORMATION

R-phrases(s)

R11	Highly flammable.
R20	Harmful by inhalation.
R36/37	Irritating to eyes and respiratory system.
R66	Repeated exposure may cause skin dryness or cracking.

<b>MSDS Effective Date</b>	:	15.12.2008
<b>MSDS Revisions</b>	:	A vertical bar ( ) in the left margin indicates an amendment from the previous version.
<b>MSDS Regulation</b>	:	
<b>Uses and Restrictions</b>	:	Use as a solvent only in industrial manufacturing processes.
<b>MSDS Distribution</b>	:	The information in this document should be made available to all who may handle the product
<b>Disclaimer</b>	:	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.