

Material Safety Data Sheet

METHYL ETHYL KETONE

Infosafe™ 10I0V **Issue** March 2010 **Status** ISSUED by **BS:**
No. **Date** OILCHEM 1.10.9

Classified as hazardous according to criteria of NOHSC

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name METHYL ETHYL KETONE
Company Name Oilchem Pty Ltd
Address 55-57 Miller Road Epping
Victoria 3076
Emergency Tel. 1800 638 556 24 hr
Telephone/Fax Number Tel: (03) 9401-3377
Fax: (03) 9401-4657
Recommended Use Use only in industrial processes.
Other Names Not Available
Additional Information Local Contact:
Telephone: 1300 669988
Fax: 1300 669987

2. HAZARDS IDENTIFICATION

Hazard Classification HAZARDOUS SUBSTANCE.
DANGEROUS GOODS.
Hazard classification according to the criteria of NOHSC.
Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s) R11 Highly flammable.
R36 Irritating to eyes.
R66 Repeated exposure may cause skin dryness and cracking.
R67 Vapours may cause drowsiness and dizziness

Safety	S2 Keep out of reach of children.
Phrase(s)	S9 Keep container in a well ventilated place. S16 Keep away from sources of ignition - No smoking.
Signs and Symptoms of Exposure	Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. 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. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.
Medical Conditions Generally Aggravated by Exposure	Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Eyes. Respiratory system. Skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on Composition	INDEX No.: 606-002-00-3 EINECS No.: 201-159-0 Additional Information: Refer to chapter 16 (Other Information) for full text of EC R-phrases.
Ingredients	See Below
CAS Number	78-93-3

4. FIRST AID MEASURES

Inhalation	Remove to fresh air. If rapid recovery does not occur, transport to 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.
Skin	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
Eye	Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for

additional treatment.

Advice to Doctor Causes central nervous system depression. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Fire Fighting Measures

Clear fire area of all non-emergency personnel.

Suitable Extinguishing Media

Alcohol-resistant 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.

Special Protective Equipment for fire fighters

Wear full protective clothing and self-contained breathing apparatus.

Specific Hazards

Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Hazchem Code

•2YE

Unsuitable Extinguishing Media

Do not use water in a jet.

Other Information

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

Hazchem Code: 2[Y]E - For fire fighting, use water fog, or in the absence of fog a fine mist may be used. 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

Emergency Procedures

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 (Exposure Controls/Personal Protection) of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 (Disposal Considerations) 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. Monitor area with combustible gas indicator.

Clean-up Methods - Small Spillages 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.

Clean-up Methods - Large Spillages 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.

Other Information Additional Advice: See Chapter 13 (Disposal Considerations) 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

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.

Precautions for Safe Handling Avoid contact with the skin. Electrostatic charges may be generated during pumping. 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 (≤ 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.

Conditions for Safe 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. Storage Temperature: Ambient.

Product Transfer	Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
Recommended Materials	For container paints, use epoxy paint, zinc silicate paint. For containers, or container linings use mild steel, stainless steel.
Unsuitable Materials	Aluminium; Plastics; Natural, neoprene or nitrile rubbers.
Other Information	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. Additional Information: Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	Material Source Type ppm mg/m ³ Notation Methyl ethyl ketone ACGIH TWA 200 ppm ACGIH STEL 300 ppm AU OEL TWA 150 ppm 445 mg/m ³ AU OEL STEL 300 ppm 890 mg/m ³ Additional Information: Wash hands before eating, drinking, smoking and using the toilet.
Biological Limit Values	Biological Exposure Index (BEI) - See reference for full details: Material Determinant Sampling time BEI Reference Methyl ethyl ketone MEK in urine End of shift 2 mg/l ACGIH (2003)
Engineering 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.
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.

Eye Protection Chemical splash goggles (chemical monogoggles).

Hand Protection Longer term protection: Butyl rubber. Polyvinyl alcohol. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Personal Protective Equipment Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Body Protection Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

Other Information 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. 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>. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods, <http://www.oshaslc.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>.

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	Clear Liquid.
Odour	Characteristic
Melting Point	-86 °C / -123 °F
Boiling Point	79 - 80.5 °C / 174 - 176.9 °F
Solubility in Water	250 g/l at 20 °C / 68 °F Miscible.
Solubility in Organic Solvents	Alcohol(s) Completely miscible.
Specific Gravity	0.804 - 0.806 at 20 °C / 68 °F
pH Value	Not applicable.
Vapour Pressure	9,500 Pa at 20 °C / 68 °F
Vapour Density (Air=1)	2.4 at 20 °C / 68 °F
Evaporation Rate	3.7 (ASTM D 3539, nBuAc=1)
Density	804 - 806 kg/m ³ at 20 °C / 68 °F (ASTM D-4052)
Flash Point	-4 °C / 25 °F (Abel)
Auto-Ignition Temperature	515 °C / 959 °F (ASTM E-659)
Explosion Limit - Upper	11.5 %(V)
Explosion Limit - Lower	1.8 %(V)
Other Information	Volatile organic carbon content: 66.6 % (EC/1999/13)

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of use. Reacts with strong oxidising agents.
Conditions to Avoid	Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	Strong oxidising agents.
Hazardous	Thermal decomposition is highly dependent on

Decomposition Products 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

Toxicology Information Repeated Dose Toxicity: Low systemic toxicity on repeated exposure.

Health Hazard Vapours may cause drowsiness and dizziness. May cause moderate irritation to skin. Repeated exposure may cause skin dryness or cracking. Irritating to eyes. Harmful: may cause lung damage if swallowed.

Reproductive Toxicity Causes slight foetotoxicity. Effects were seen at high doses only. Not expected to impair fertility.

Mutagenicity Not mutagenic.

Carcinogenicity Not expected to be carcinogenic.

Basis for Assessment Information given is based on product testing.

Acute Toxicity - Oral Low toxicity: LD50 >2000 mg/kg, Rat
Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Acute Toxicity - Dermal Low toxicity: LD50 >2000 mg/kg , Rabbit

Acute Toxicity - Inhalation 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.

Eye Irritation Irritating to eyes.

Skin Irritation May cause moderate skin irritation (but insufficient to classify).
Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.

Respiratory Irritation Inhalation of vapours or mists may cause irritation to the respiratory system.

Skin Sensitisation Not a skin sensitiser.

Other Information Additional Information: Exposure may enhance the toxicity of other materials.

12. ECOLOGICAL INFORMATION

Persistence / Degradability	Readily biodegradable meeting the 10 day window criterion. Oxidises rapidly by photo-chemical reactions in air.
Mobility	Dissolves in water.
Bioaccumulative Potential	Does not have the potential to bioaccumulate significantly.
Acute Toxicity - Fish	Low toxicity: LC/EC/IC50 > 1000 mg/l
Acute Toxicity - Algae	Low toxicity: LC/EC/IC50 > 1000 mg/l
Acute Toxicity - Other Organisms	Aquatic Invertebrates: Low toxicity: LC/EC/IC50 > 100 mg/l Microorganisms: Low toxicity: LC/EC/IC50 > 1000 mg/l

13. DISPOSAL CONSIDERATIONS

Product 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. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
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

Transport Information	<p>ADG: UN number: 1193 Proper shipping name: ETHYL METHYL KETONE Class: 3 Packing group: II Hazchem Code: 2YE</p> <p>IMDG: Identification number: UN 1193 Proper shipping name: METHYL ETHYL KETONE Class / Division: 3 Packing group: II</p>
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Marine pollutant: No

IATA (Country variations may apply):

UN No.: 1193

Proper shipping name: Methyl ethyl ketone

Class / Division: 3

Packing group: II

Additional Information: This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

U.N. Number 1193

Proper Shipping Name

ETHYL METHYL KETONE (METHYL ETHYL KETONE)

DG Class 3

Hazchem Code •2YE

Packing Group II

EPG Number 3A1

IERG Number 14

15. REGULATORY INFORMATION

Regulatory Information

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

AICS: Listed.

DSL: Listed.

INV (CN): Listed.

ENCS (JP): Listed. (2)-542

TSCA: Listed.

EINECS: Listed. 201-159-0

KECI (KR): Listed. KE-24094

PICCS (PH): Listed.

Poisons

Schedule S5

Symbol

F: Highly flammable

Xi: Irritant

Hazard Category Irritant, Highly Flammable

16. OTHER INFORMATION

Uses and

Restrictions Use only in industrial processes.

Revisions Highlighted MSDS Revisions: A vertical bar (|) in the left margin indicates an amendment from the previous version.

SDS Distribution The information in this document should be made available to all who may handle the product.

Other Information R-phrase(s):
R11 Highly flammable.
R36 Irritating to eyes.
R66 Repeated exposure may cause skin dryness or cracking.
R67 Vapours may cause drowsiness and dizziness.

MSDS Version Number : 3.

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

End of MSDS

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