Infosafe No™ 1CH2R	Issue Date :June 2021	RE-ISSUED by CHEMSUPP

Product Name **METHYL ETHYL KETONE**

Classified as hazardous

1. Identification

GHS Product Identifier METHYL ETHYL KETONE

Company Name CHEMSUPPLY AUSTRALIA PTY LTD (ABN 19 008 264 211)

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Recommended use of the chemical and restrictions on use Solvent, particularly for various coating systems, such as vinyl, adhesives, nitrocellulose, and acrylic coatings; for paint removers, lacquers, varnishes, spray paints, sealers, glues, magnetic tapes, printing inks, resins, rosins, cleaning solutions, and polymerization; used in dewaxing lubricating oils, degreasing of metals, in the production of synthetic leathers, transparent paper and aluminium foil, and as a chemical intermediate and catalyst; extraction solvent in the processing of foodstuffs and food ingredients and laboratory reagent. MEK is found in some fruits and vegetables and occurs naturally in blood, urine and exhaled air, probably as a minor product of normal metabolism.

Other Names

Name	Product Code
2-Butanone, MEK, Methyl acetone	
METHYL ETHYL KETONE AR	MA011
METHYL ETHYL KETONE TG	MT011

Other Information

ChemSupply Australia 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 ChemSupply Australia 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 ChemSupply Australia 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 2
Specific target organ toxicity - Single Exposure Category 3
Specific target organ toxicity - Single Exposure Category 3

Signal Word (s) DANGER

Hazard Statement (s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
AUH066 Repeated exposure may cause skin dryness or cracking

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.
Precautionary statement – Response	P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. 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. P370+P378 In case of fire: Use dry chemical, alcohol resistant foam or carbon dioxide for extinction.
Precautionary statement – Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.
Other Information	There are several human case reports of neurological effects resulting from high exposure to methyl ethyl ketone in combination with other solvents. Animal studies have confirmed synergism between methyl ethyl ketone and ethyl n-butyl ketone, methyl n-butyl ketone, n-hexane, carbon tetrachloride, 2,5-hexanedione and chloroform. Principal target organs involved in toxicological interactions are the nervous system and liver, although the lung has also been implicated.

3. Composition/information on ingredients

Ingredients	Name	CAS	Proportion
	Ethyl methyl ketone	78-93-3	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 if effects persist.
Skin	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If irritation occurs seek medical advice.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.
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	Explosive peroxides, such as MEK peroxide; carbon monoxide, carbon dioxide.

Specific Methods	Caution: Use of water spray when fighting fire may be inefficient. Small fire: Use alcohol resistant foam, dry chemical, CO2 or fine water spray. Large fire: Use alcohol resistant 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 products have a low flash point - Will be easily ignited by heat, sparks or flames at ambient temperatures. Vapours will form explosive mixtures with air. Vapours will travel to source of ignition and flash back. Fire may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Many liquids are lighter than water. Many vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks). Vapours from run-off may create an explosion hazard.
Hazchem Code	•2YE
Precautions in connection with Fire	SCBA and structural firefighter's uniform may provide limited protection. Fully-encapsulating, gas-tight suits should be worn for maximum protection.

6. Accidental release measures

Spills & Disposal	ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used in 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. 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. Water spray may be used to knock down or divert vapour clouds. 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	Keep locked up. Do not ingest. Do not breathe fumes/vapour/spray. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Wash thoroughly after handling. Wear suitable protective clothing. Remove contaminated clothing and wash before reuse. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis. Use only with adequate ventilation. Keep away from heat and all sources of ignition - Do not smoke. Fumes can combine with air to form an explosive mixture. Take precautions against static discharge. All electrical equipment must be flameproofed. Ground all equipment containing material. Use grounding and bonding connection when transferring material to prevent static discharges, fire or explosion. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapours, 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, open flames.
Conditions for safe storage, including any incompatibilities	Store tightly closed, in a cool, dry, well-ventilated area away from incompatible substances. Keep protected from direct sunlight and moisture. Store away from oxidizers, reducing agents and alkalis (caustic solutions). May form peroxides, which may be explosive after prolonged exposure to air and

	heat and upon prolonged storage. Protect against physical damage. Store away from heat and sources of ignition such as flame, sparks and static electricity. Storage and use areas should be No Smoking areas. Ensure that all storage and handling equipment is properly rated, grounded and installed to satisfy electrical classification requirements. Static electricity may accumulate and create a fire hazard. All storage containers, including containers such as drums, cylinders and IBC's, must be bonded and grounded during filling and emptying operations. Store small containers in suitable flammable liquid storage cabinets when not in use. Larger drums (200L) must be kept in purpose-built stores. Outside or detached storage is preferred. Store in a segregated and approved area. Flammables-area.
Corrosiveness	Attacks copper in the presence of acetylene.
Storage Regulations	Refer Australian Standard AS 1940-2017 'The storage and handling of flammable and combustible liquids'.
Storage Temperatures	Store at temperatures below 30 °C, room temperature (15 to 25°C) recommended.
Unsuitable Materials	Many plastics, resins and rubber.

8. Exposure controls/personal protection

Occupational exposure limit values

Name	STEL		TWA		
	mg/m3	ppm	mg/m3	ppm	Footnote
Ethyl methyl ketone	890	300	445	150	

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 Methyl ethyl ketone (MEK) (Worksafe Aust) of 445 mg/m³, (150 ppm). The corresponding STEL level is 890 mg/m³, (300 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. 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.

Appropriate engineering controls

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.

Hand Protection

Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.

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 Zealand

	or other approved standards.
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 antistatic 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	Strong characteristic, fresh or sweet/sharp, fragrant, acetone-like odour.
Melting Point	-86.3 °C
Boiling Point	79.6 °C
Solubility in Water	Moderately Soluble (26.8-29 mg/100 mL at 20 °C).
Solubility in Organic Solvents	Soluble in ethanol, acetone, diethyl ether, benzene, oils and other organic solvents.
Specific Gravity	0.805 at 20 °C (water = 1)
pH	~ 5.5 (300g/l H2O)
Vapour Pressure	105 hPa at 20 °C
Vapour Density (Air=1)	2.48 (air = 1)
Evaporation Rate	2.7 (ether=1)
Odour Threshold	2-83 ppm (detection); 5.4-55 ppm (recognition).
Viscosity	0.41 mPa.s (0.41 centipoises) at 20 °C
Volatile Component	100%
Partition Coefficient: n-octanol/water	Log P(oct) = 0.26; 0.29.
Surface Tension	24.6 dynes/cm at 20 °C
Flash Point	-9 °C to -2 °C (closed cup)
Flammability	HIGHLY FLAMMABLE. 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	515 °C
Flammable Limits - Lower	1.8 vol%
Flammable Limits - Upper	11.5 vol%
Explosion Properties	Above flash point, vapour-air mixtures are explosive within flammable limits noted above. Vapours can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated.
Molecular Weight	72.11

Saturated Vapour Concentration	Approximately 102,000 ppm (10.2%) at 20 °C (calculated)
Other Information	Does not dissolve cellulose acetate and most waxes. Refractive index: 1.379 @ 20 °C Specific heat: 0.549 cal/g °C

10. Stability and reactivity

Chemical Stability	Stable under ordinary conditions of use and storage. Hygroscopic Becomes yellow over time.
Conditions to Avoid	Heat, flames, sparks, electrostatic discharge, mechanical shock, ignition sources, confined spaces, contact with air, moisture and incompatibles.
Incompatible Materials	Oxidising agents (i.a. CrO3, mixtures of hydrogen peroxide and nitric acid, mixtures of hydrogen peroxide and conc. sulfuric acid), mixtures of haloforms (e.g. chloroform) and strong bases (e.g. potassium hydroxide), strong acids (e.g. oleum, chlorosulfonic acid, nitric acid), solid potassium t-butoxide, reducing agents, metals, acids, alkalis, chloroform, copper, hydrogen peroxide, 2-propanol, chlorosulfonic acid, amines, ammonia, inorganic acids, isocyanates, pyrindines, many plastics, resins and rubber. Chromium (IV) oxides.
Hazardous Decomposition Products	Explosive peroxides, such as MEK peroxide; carbon monoxide, carbon dioxide.
Possibility of hazardous reactions	Oxidising (e.g. peroxides, nitrates, perchlorates) - increased risk of fire and explosion. Strong acids (e.g. oleum, chlorosulfonic acid) - reaction can produce heat and pressure. Mixtures of haloforms (e.g. chloroform) and strong bases (e.g. potassium hydroxide) - may react vigorously or explosively. Mixtures of hydrogen peroxide and nitric acid - may overheat and explode violently due to formation of shock- and heat-sensitive peroxides. Solid potassium t-butoxide - contact with liquid or vapours of MEK can ignite after 0.5 to 1 minute. 2-Propanol - MEK markedly increases the peroxidation of the alcohol in light and the mixture can explode on heating.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 3400 mg/kg.
Ingestion	May cause irritation of the digestive tract. Possible aspiration hazard. May cause central nervous system depression, drowsiness, nausea, drop in blood pressure. Animal evidence suggests that MEK can be aspirated (inhaled) into the lungs during ingestion or vomiting.
Inhalation	Inhalation of vapors may cause drowsiness and dizziness. May cause central nervous system effects such as nausea and headache. Neurobehavioural effects of exposure to MEK (200 ppm for 4 hrs) were studied with 137 volunteers. There were no statistically significant effects observed in biochemical, psychomotor, sensorimotor and psychological tests.
Skin	May cause irritation to skin. Symptoms may include redness, itching, and pain. May be absorbed through the skin in harmful amounts with possible systemic effects. Repeated or prolonged exposure may cause drying and cracking of the skin.
Eye	Splashes can produce painful irritation and eye damage.
Respiratory sensitisation	Not classified based on available information.
Skin Sensitisation	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Not listed in the IARC Monographs. Not classified based on available information.
Reproductive Toxicity	Not classified based on available information.

STOT-single exposure	Specific target organ toxicity - Single Exposure Category 3 H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Chronic inhalation may cause effects similar to those of acute inhalation. Prolonged or repeated skin contact may cause defatting and dermatitis. Chronic overexposure to vapours may cause lung damage. Chronic exposure may cause central nervous system effects.
Mutagenicity	Not classified based on available information.

12. Ecological information

Persistence and degradability	Abiotic degradation: Rapid degradation. (air) Biologic degradation: Readily biodegradable. (Reduction: >70%, BOD>60%; BOD5 to COD>50%) TOD: 2.44 g/g; COD 100 % of TOD; COD 95% from TOD.
Mobility	Distribution: log P(o/w): 0.29.
Bioaccumulative Potential	Low bioaccumulation potential.
Acute Toxicity - Fish	LC50 (P. promelas): 3220 mg/l/96h.
Acute Toxicity - Daphnia	EC50 (Daphnia magna): 5091 mg/l.
Acute Toxicity - Algae	EC5 (Sc. quadricauda): >4300 mg/l/17d
Acute Toxicity - Bacteria	EC5 (Pseudomonas putida): 1150 mg/l
Acute Toxicity - Other Organisms	aquatic organisms LC50: > 1000 mg/l /96 h.

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	1193
UN proper shipping name	ETHYL METHYL KETONE (METHYL ETHYL KETONE)
Transport hazard class(es)	3
Hazchem Code	•2YE
Packing Group	II
EPG Number	3A1
IERG Number	14

15. Regulatory information

Regulatory Information	All the constituents of this product are listed on the Australian Inventory of Chemical Substances (AICS), or exempted. Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	S5

16. Other Information

Literature References

'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia.
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'.
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals'.
Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand.
Safe Work Australia, 'Hazardous Chemical Information System'.
Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances'.
Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment'.

Contact Person/Point

Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT:
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Empirical Formula & Structural Formula

Empirical Formula: C4-H8-O
Structural Formula: CH3-CO-CH2-CH3

...End Of MSDS...

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