

SAFETY DATA SHEET



Revision date: 21-Feb-2022

Revision Number 7

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product identifier

Product Name METHYL ISOBUTYL CARBINOL

Product Code(s) 000031314201

Other means of identification

UN number 2053

CAS No. 108-11-2

Synonyms Methyl amyl alcohol; 4-Methyl-2-pentanol; Isobutyl methyl carbinol; MIBC.

Recommended use of the chemical and restrictions on use

Recommended use Solvent. Mineral flotation agent.

Uses advised against No information available.

Supplier

Ixom Operations Pty Ltd
ABN: 51 600 546 512
Level 8, 1 Nicholson Street
Melbourne 3000
Australia

Telephone Number: +61 3 9906 3000

Emergency telephone number

Emergency telephone number **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

GHS Classification

Classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

Classified as a hazardous chemical in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

Flammable liquids	Category 3
Acute toxicity - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3

SIGNAL WORD

Warning

Label elements

Flame

Exclamation mark

**Hazard statements**

H226 - Flammable liquid and vapor

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

H335 - May cause respiratory irritation

Precautionary Statements - Prevention

Avoid breathing dust / fume / gas / mist / vapours / spray

Wash hands thoroughly after handling

Use only outdoors or in a well-ventilated area

Wear protective gloves / protective clothing / eye protection / face protection

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground/bond container and receiving equipment

Use explosion-proof electrical, ventilating, lighting equipment

Use only non-sparking tools

Take precautionary measures against static discharge

Precautionary Statements - Response

Specific treatment (see First aid on this SDS)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

IF ON SKIN: Wash with plenty of soap and water

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Take off contaminated clothing and wash before reuse

If skin irritation occurs: Get medical advice/attention

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Call a POISON CENTER or doctor/physician if you feel unwell

In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Store in a well-ventilated place. Keep cool

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Other hazards which do not result in classification

May be harmful if swallowed

May be harmful in contact with skin

Poisons Schedule (SUSMP)

None allocated

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%
Methyl isobutyl carbinol	108-11-2	>98.0%

Diisobutyl ketone	108-83-8	<2.0%
Methyl isobutyl ketone	108-10-1	<1.0%

4. FIRST AID MEASURES

Description of first aid measures

General advice	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.
Inhalation	Remove to fresh air. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water. Call a physician if symptoms occur.
Ingestion	Clean mouth with water. Drink 1 or 2 glasses of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Most important symptoms and effects, both acute and delayed

Symptoms Irritation. Vapors may cause drowsiness and dizziness.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. No specific antidote.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media Alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal protein foam can be used.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Flammable. Most vapors are heavier than air. Vapors may spread along ground and collect in low or confined areas (sewers, basements, tanks). Flash back possible over considerable distance.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code •3Y

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin and eyes. Avoid breathing vapors or mists. Evacuate personnel to safe areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. Use personal protective equipment as required.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Keep out of drains, sewers, ditches and waterways. Stop leak if you can do it without risk.

Methods for cleaning up Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Use non-sparking tools.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes, and clothing. Do not eat, drink or smoke when using this product. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep container closed when not in use.

Incompatible materials Acids. Acid chlorides. Oxidizing agents.

Poisons Schedule (SUSMP) None allocated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Methyl isobutyl carbinol: 8hr TWA = 104 mg/m³ (25 ppm), 15 min STEL = 167 mg/m³ (40 ppm), Sk

Diisobutyl ketone: 8hr TWA = 145 mg/m³ (25 ppm)

Methyl isobutyl ketone: 8hr TWA = 205 mg/m³ (50 ppm), 15 min STEL = 307 mg/m³ (75 ppm)

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working

day, for a five-day working week.

STEL (Short Term Exposure Limit) - the airborne concentration of a particular substance calculated as a time-weighted average over 15 minutes, which should not be exceeded at any time during a normal eight hour work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

`Sk' (skin) Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

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.

Appropriate engineering controls

Engineering controls

Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, RESPIRATOR.



Eye/face protection

Goggles.

Skin and body protection

Boots. Wear suitable protective clothing. Overalls.

Hand protection

Impervious gloves.

Respiratory protection

If determined by a risk assessment an inhalation risk exists, wear an organic vapour respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

When handling this product in bulk quantities, and/or in Intermediate Bulk Containers (IBC's), wear overalls, safety shoes, impervious gloves, chemical goggles, and a face shield. If determined by a risk assessment an inhalation risk exists, wear appropriate respiratory protection as mentioned above.

Environmental exposure controls

No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state

Liquid

Appearance

No information available.

Color Colourless
 Odor Mild
 Odor threshold No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Melting point / freezing point	-90°C	None known
Boiling point / boiling range	132°C	None known
Flash point	40.56°C	Open Cup
Evaporation rate	0.43 (Butyl acetate=1)	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	5.5% vol	
Lower flammability or explosive limits	1.0% vol	
Vapor pressure	No data available	None known
Vapor density	3.5 (air=1)	None known
Relative density	0.807 @20°C	None known
Water solubility	17 g/L @ 20 °C	None known
Solubility(ies)	No data available	None known
Partition coefficient	log Pow = 1.57 (estimated)	None known
Autoignition temperature	355°C @ 1013 hPa	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	5.2 mPa.s @20°C	None known

Other information

10. STABILITY AND REACTIVITY

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid

Conditions to avoid Heat, flames and sparks.

Incompatible materials

Incompatible materials Acids. Acid chlorides. Oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information	No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:
Inhalation	Irritating to respiratory system. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Causes serious eye irritation.
Skin contact	Causes skin irritation. Will have a mild degreasing effect on the skin on frequent usage. May be absorbed through the skin in harmful amounts.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration may cause pulmonary edema and pneumonitis.
Symptoms	Irritation. Vapors may cause drowsiness and dizziness.

Numerical measures of toxicity - Product Information

No information available.

Numerical measures of toxicity - Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Methyl isobutyl carbinol	= 2600 mg/kg (Rat)	= 2880 mg/kg (Rabbit)	> 4600 ppm (Rat) 2 h
Diisobutyl ketone	= 5750 mg/kg (Rat)	= 16 g/kg (Rabbit)	> 2300 ppm (Rat) 4 h
Methyl isobutyl ketone	= 2080 mg/kg (Rat)	= 3000 mg/kg (Rabbit)	2000 - 4000 ppm (Rat) 4 h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Irritating to skin. Classification is based on mixture calculation methods based on component data.
Serious eye damage/eye irritation	Causes serious eye irritation. Classification is based on mixture calculation methods based on component data.
Respiratory or skin sensitization	Not a skin sensitizer. (guinea pig).
Germ cell mutagenicity	Did not show mutagenic effects in animal experiments.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	May cause respiratory irritation.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity Keep out of waterways.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Methyl isobutyl carbinol	-	LC50: >92.4mg/L (96h, Pimephales promelas) LC50: =360mg/L (24h, Carassius auratus)	-	-
Diisobutyl ketone	EC50: =100mg/L (96h, Pseudokirchneriella subcapitata)	LC50: =140mg/L (96h, Oncorhynchus mykiss)	-	-
Methyl isobutyl ketone	EC50: =400mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 496 - 514mg/L (96h, Pimephales promelas)	-	EC50: =170mg/L (48h, Daphnia magna)

Persistence and degradability

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Methyl isobutyl carbinol	1.43
Methyl isobutyl ketone	1.19

Mobility

Mobility in soil No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

14. TRANSPORT INFORMATION

ADG

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and

Rail; DANGEROUS GOODS.

UN number 2053
Proper shipping name METHYL ISOBUTYL CARBINOL
Hazard class 3
Packing group III
Hazchem code •3Y

IATA

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN number 2053
UN proper shipping name METHYL ISOBUTYL CARBINOL
Transport hazard class(es) 3
Packing group III

IMDG

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN number 2053
UN proper shipping name METHYL ISOBUTYL CARBINOL
Transport hazard class(es) 3
Packing group III
IMDG EMS Fire F-E
IMDG EMS Spill S-D

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

Classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

Classified as a hazardous chemical in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

See section 8 for national exposure control parameters

Poisons Schedule (SUSMP) None allocated

Major hazard (accident/incident planning) regulation

Verify that license requirements are met

Hazardous chemical

Liquids that meet the criteria for Class 3 Packing Group II or III

Threshold quantity (T)

50 000

National pollutant inventory

Subject to reporting requirement

Chemical name	National pollutant inventory
Methyl isobutyl carbinol - 108-11-2	20 MWh Threshold category 2b total 60000 MWh Threshold category 2b total 1 tonne/h Threshold category 2a total 25 tonne/yr Threshold category 1a total 400 tonne/yr Threshold category 2a total 2000 tonne/yr Threshold category 2b total

Diisobutyl ketone - 108-83-8	20 MW Threshold category 2b total 60000 MWH Threshold category 2b total 1 tonne/h Threshold category 2a total 25 tonne/yr Threshold category 1a total 400 tonne/yr Threshold category 2a total 2000 tonne/yr Threshold category 2b total
Methyl isobutyl ketone - 108-10-1	10 tonne/yr Threshold category 1

International Inventories**AIIC**

All the constituents of this material are listed on the Australian Inventory of Industrial Chemicals.

Legend:

AIIC - Australian Inventory of Industrial Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. OTHER INFORMATION

Reason(s) For Issue: 5 Yearly Revised Primary SDS

Issuing Date: 21-Feb-2022

This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

Revision Note:

The symbol (*) in the margin of this SDS indicates that this line has been revised.

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

Key literature references and sources for data used to compile the SDS

EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian Industrial Chemicals Introduction Scheme (AICIS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program

Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

End of Safety Data Sheet