

Safety Data Sheet **DICHLOROMETHANE / METHYLENE CHLORIDE**

SDS no. ZWM5RR14 • Version 1.0 • Date of issue: 2024-02-04

SECTION 1: Identification

GHS Product identifier

Product name DICHLOROMETHANE / METHYLENE CHLORIDE

Other means of identification

Dichloromethane AR Stabilised with amylene	MA012
Dichloromethane AR stabilised with amylene	MA012-10L
Dichloromethane AR stabilised with amylene	MA012-2.5L
Dichloromethane AR stabilised with amylene	MA012-250KG
Dichloromethane AR stabilised with amylene	MA012-270KG
Dichloromethane AR stabilised with amylene	MA012-500M
Dichloromethane LR Stabilised with amylene	ML012
Dichloromethane LR Stabilised with amylene	ML012-10L
Dichloromethane LR Stabilised with amylene	ML012-2.5L
Dichloromethane LR Stabilised with amylene	ML012-200L
Dichloromethane LR Stabilised with amylene	ML012-500M
Methylene Chloride TG (Dichloromethane)	MT012
Methylene Chloride TG (Dichloromethane)	MT012-10L-P
Methylene Chloride TG (Dichloromethane)	MT012-270KG
Methylene bichloride, Methylene dichloride	

Recommended use of the chemical and restrictions on use

Solvent degreasing, paint removers, aerosol propellant, plastics processing, blowing agent in foams, insecticide, solvent extraction, solvent for cellulose acetate, analytical reagent and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

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General hazard statement

Dangerous Goods of Class 6 (Toxic and Infectious Substances) are incompatible in a placard load with any of the following: Class 1, Class 3, if the Class 3 dangerous goods are nitromethane, Class 8, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids; and are incompatible with food and food packaging in any quantity.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Carcinogenicity, Cat. 2
- Serious eye damage/eye irritation, Cat. 2A
- Skin corrosion/irritation, Cat. 2
- Specific target organ toxicity following single exposure, Cat. 3

GHS label elements, including precautionary statements

Pictograms



Signal word

Warning

Hazard statement(s)

H315	Causes skin irritation
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water/soap
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/doctor/physician if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 84.93

Information on Composition: Derived by chlorination of methyl chloride and subsequent distillation.

Components

Component	CAS no.	Concentration
Dichloromethane (EC no.: 200-838-9; Index no.: 602-004-00-3)	75-09-2	100 % (weight)
CLASSIFICATIONS: Carcinogenicity, Cat. 2. HAZARDS: H351 - Suspected of causing cancer [route].		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. First Aid Facilities: Maintain eyewash fountain in work area.
If inhaled	If inhaled, remove from contaminated area to fresh air immediately, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.
In case of skin contact	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.
In case of 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.
If swallowed	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.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Use extinguishing media most appropriate for the surrounding fire. No limitations to the type of extinguishing media.

Specific hazards arising from the chemical

Vapour is heavier than air. May produce irritating and toxic fumes in fire.
Material does not burn.

Special protective actions for fire-fighters

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate the area of all non-essential personnel.
Avoid contact with skin and eyes. Avoid ingestion and inhalation of the material.
Wear protective clothing specified for normal operations (see Section 8)

Environmental precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Methods and materials for containment and cleaning up

Do NOT touch or walk through this product. Do NOT touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas.
Cover with DRY earth, sand or other non-combustible material followed by plastic sheet to minimize spreading or contact with rain.
DO NOT GET WATER INSIDE CONTAINERS.

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.

SECTION 7: Handling and storage

Precautions for safe handling

When opening containers, avoid inhalation of headspace gases. Avoid prolonged or repeated contact with skin, eyes and clothing . Ensure the appropriate personal protective equipment is used when handling this material. Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment. Wash hands and face thoroughly after working with material. When using do not eat, drink or smoke.

Open containers with care - volatile solvent. Do not use during welding, or near heat or where oxygen levels are increased. Product is not flammable under conditions likely to be encountered, but does form flammable air/vapour mixture above 100 °C.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed and in a cool, well-ventilated place Keep away from heat and other sources of ignition. Keep containers securely sealed and protected against physical damage. Store away from oxidizing agents. Store away from strong bases. Store away from metallic aluminium powder. This material may corrode plastic and rubber. All storage containers should be galvanised or lined with a phenolic coating to minimise decomposition.

Liquid methylene chloride may attack some forms of plastics, rubber and coatings. Non-corrosive in presence of glass.

Additional information on precautions for use: Dangerous levels of exposure may occur before the odour is sensed as the odour threshold (205-307 ppm) is above the TWA (50 ppm).

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face 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.

Skin protection

Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

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Gloves: Ansell Lamine Film (Barrier), or Supported Polyvinyl Alcohol (PVA).

Body protection

Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

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.

Respiratory protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear, colourless volatile liquid.
Color	No data available.
Odor	Penetrating chloroform-like odour; characteristic odour.
Odor threshold	No data available.
Melting point/freezing point	-95 - -97.0 °C
Boiling point or initial boiling point and boiling range	~ 39.75 °C @ 760 mm Hg
Flammability	No data available.
Lower and upper explosion limit/flammability limit	Flammable Limits - Lower: 13% Flammable Limits - Upper: 22%
Flash point	No data available.
Explosive properties	No data available.
Auto-ignition temperature	605 °C
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	~7 (20 °C)
Kinematic viscosity	Viscosity: 0.430 mPas (20 °C)
Solubility	Solubility in Water: Slightly soluble (20 g/L @ 20 °C). Solubility in Organic Solvents: Soluble in alcohol, diethyl ether, acetone, DMF.
Partition coefficient n-octanol/water (log value)	log Pow: 1.25
Vapor pressure	475 hPa (20 °C);
Evaporation rate	27.5
Density and/or relative density	Specific Gravity: 1.326
Relative vapor density	2.9
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

Other Information: Dielectric constant: 9.1 (@ 20 °C)

Dipole moment: 1.6 Debye (@ 20 °C)

Heat of evaporation: 329 kJ/kg (@ 40 °C)

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Refractive index: 1.4246 (@ 20 °C)

Saturation concentration: 1549 g/m³ (@ 20 °C)

Heavy vapours

SECTION 10: Stability and reactivity

Reactivity

Stable under normal conditions of storage and handling.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Forms flammable air/vapour mixture above 100 °C. Decomposes in a flame or on a hot surface to form toxic phosgene gas and corrosive mists of hydrochloric acid.

Conditions to avoid

Moisture. Heat, flames, ignition sources and incompatibles.

Incompatible materials

Chemically active metals (in powder form), eg. magnesium metal and aluminium powder, sodium, potassium and lithium. Alkali metals, alkaline earth metals, alcoholates, alkali amides, electrical arcs, heat, nitric acid, nitric oxides, nonmetallic oxides, Oxidising agents, open flames, oxygen, plastics, perchloric acid, Potassium permanganate in water, strong bases and water.

Unsuitable working materials: Liquid methylene chloride will attack some forms of plastics, rubber, light metals, steel and coatings.

Hazardous decomposition products

Toxic phosgene gas, oxides of carbon and corrosive hydrogen chloride gas.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute Toxicity - Oral: LD50 (rat): >2000 mg/kg.

Ingestion: May cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration, chemical pneumonia could follow. Absorption through gastrointestinal tract may produce symptoms of central nervous system depression ranging from light headedness to unconsciousness. Symptoms of overexposure include fatigue, weakness, sleepiness, light headedness, numbness or tingle of limbs, gastrointestinal discomfort, drowsiness, irregular breathing, nausea and vomiting. May lead to central nervous system depression. Vomiting may result in aspiration followed by chemical pneumonitis. Swallowing in large quantities may result in liver and kidney damage. Rapidly absorbed through the gastrointestinal tract.

Inhalation: Inhalation of mists or aerosols produces upper respiratory (nose, mouth, throat, lungs) irritation and mucousal irritation. Has a strong narcotic effect with symptoms of mental confusion, light-headedness, fatigue, weakness, sleepiness, numbness or tingling of limbs, dizziness, nausea, vomiting and headache. Dichloromethane vapour is readily absorbed by the lungs. The chemical displaces oxygen from the air by forming carbon monoxide in blood which affects cardiovascular system and central nervous system. May lead to central nervous system depression, unconsciousness and possible death. Continued exposure may cause increased light-headedness, difficulty in breathing, staggering, unconsciousness, and even death. Rapidly absorbed through the upper respiratory tract.

Skin corrosion/irritation

Contact with skin may result in irritation, redness and pain. Will have a degreasing action on the skin, possibly followed by secondary

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inflammation. May be absorbed through skin. Symptoms include irritation, redness and pain. Prolonged contact can cause burns. Prolonged or repeated contact with skin may cause defatting, dermatitis. Rapidly absorbed through the mucous membranes and the skin.

Serious eye damage/irritation

A moderate eye irritant. High concentrations of vapours will cause irritation. Symptoms include redness, pain, inflammation, watering, provokes tears, blurred vision and itching, which may lead to conjunctivitis and temporal eye damage.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

Listed as a carcinogen, category 3 in Hazardous Substances Information System - Safe Work Australia.

Category 3 - Substances suspected of having carcinogenic potential are those substances which have possible carcinogenic effects on humans but in respect of which the available information is not adequate for making a satisfactory assessment. There is some evidence from appropriate animal and epidemiological studies, but this is insufficient to place the substance in Category 2.

Reproductive toxicity

No data available.

Specific target organ toxicity (STOT) - single exposure

May cause drowsiness or dizziness

Specific target organ toxicity (STOT) - repeated exposure

No data available.

Aspiration hazard

No data available.

Additional information

Chronic Effects: Repeated or prolonged skin contact may cause chronic dermatitis. Could cause headaches, mental confusion, depression, liver effects, kidney effects, bronchitis, loss of appetite, nausea, lack of balance, and visual disturbances. Methylene chloride may cause cancer in humans. Evidence from animal tests indicate that repeated or prolonged exposure to this chemical could result in reproductive system disorders. Rapidly absorbed through the upper respiratory tract, gastrointestinal tract and skin. Absorption of large quantities causes CNS disorders, drowsiness, dizziness, drop in blood pressure, cardiac dysrhythmia, respiratory paralysis, respiration depression, and narcosis.

Other Information: An Existing Chemical Information Sheet has been prepared for this chemical by NICNAS available from their website.

The conclusion to Safe Work Australia's documentation for the exposure standards for methylene chloride has been reproduced below. Occupational exposure to methylene chloride is primarily via inhalation and by skin contact. In humans, methylene chloride is readily absorbed via the lungs and to some extent through the skin. The uptake of methylene chloride through the lungs is directly proportional to exposure. Its absorption increases with increased physical activity and body fat percentage.

The metabolism of methylene chloride is via two metabolic pathways: the cytochrome P450-dependent transformation to carbon monoxide and the glutathione-S-transferase-dependent metabolism to formaldehyde and formic acid. The first metabolic pathway results in elevated levels of COHb and increased levels of CO in expired air. This pathway is rate limited by enzyme saturation so that at high doses, the blood level of COHb becomes constant and independent of dose. Blood COHb is elevated for longer periods for methylene chloride exposure than for CO exposure alone. This is due to the continued metabolism of methylene chloride retained in body tissues following exposure.

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The combined effect of smoking and exposure to methylene chloride will produce an additive increase in blood COHb values.

In humans, the major health effects of acute exposure to methylene chloride are central nervous system depression and elevated blood COHb levels. A number of deaths have been reported from high acute exposures to the chemical. Data from controlled human studies indicate that for sedentary, non-smoking individuals exposure to methylene chloride vapour to 100 ppm for eight hours will produce a blood COHb of about three per cent, which is less than the increase in blood COHb levels produced by an exposure to CO alone at 35 ppm for eight hours.

From a series of epidemiological studies conducted at two plants, with the mean exposure of 26 ppm at one plant and median exposure from 140 to 475 ppm at the other, there was no increase in lung and liver cancers, ischaemic heart disease or mortality compared with that of the general population. There was an equivocal increase in biliary cancer in one study and pancreatic cancer in the other.

In short-term repeated dose studies in animals, exposure to methylene chloride concentrations greater than 1000 ppm indicate that the liver and CNS are the primary target organs. At concentrations greater than 10,000 ppm, deaths from pulmonary congestion occurred. In reproductive studies there was no evidence of teratogenicity.

Chronic inhalation studies in rats, hamsters and mice at high dose levels have revealed: in rats, an increase in benign mammary tumours, and in male rats an increased incidence of sarcomas in the salivary gland region; in mice, an increase in the incidence of lung and liver tumours; and in hamsters no significant increase in the incidence of tumours.

Methylene chloride is mutagenic in the Ames assay but the interpretation of these results are complicated by the fact that the bacteria used in these assays metabolise methylene chloride. Mutagenic activity was observed in some mammalian cell cultures. No mutagenic activity was observed in vivo.

SECTION 12: Ecological information

Toxicity

The LC50/96-hour values for fish are over 100 mg/l. This material is not expected to be toxic to aquatic life.

Acute Toxicity - Fish: LC50 (Pimephales promelas-fathead minnow): 193 mg/l/96 h

[8Y] Acute Toxicity - Daphnia: EC50 (Daphnia magna-Water flea): 1682 mg/l/48 h

SECTION 13: Disposal considerations

Disposal methods

Product disposal

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Other disposal recommendations

Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)

UN Number: 1593

Class: 6.1

Packing Group: III

Proper Shipping Name: DICHLOROMETHANE

Hazchem emergency action code (EAC)

2Z

IMDG

UN Number: 1593
Class: 6.1
Packing Group: III
EMS Number:
Proper Shipping Name: DICHLOROMETHANE

IATA

UN Number: 1593
Class: 6.1
Packing Group: III
Proper Shipping Name: DICHLOROMETHANE

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP

Poison Schedule: S5

SECTION 16: Other information

Further information/disclaimer

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.

Preparation information

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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', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)