

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

## 1. Identification

**GHS Product Identifier** DICHLOROMETHANE / METHYLENE CHLORIDE

**Company Name** BERMUDA INDUSTRIAL SUPPLIES (71 149 716 003)

**Address** 16/1 Cowpasture Place  
Wetherill Park  
NSW 2164 Australia

**Telephone Number** 02 9604 4344

**Emergency phone number** 02 9604 4344

**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.

**Other Names**

<u>Name</u>	<u>Product Code</u>
DICHLOROMETHANE LR, stabilised with amylene	
DICHLOROMETHANE AR, stabilised with amylene	
METHYLENE CHLORIDE TG	
Methylene bichloride, Methylene dichloride	

### Other Information

Bermuda Industrial Supplies 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 Bermuda Industrial Supplies 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 Bermuda Industrial Supplies 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** Carcinogenicity: Category 2  
Eye Damage/Irritation: Category 2A  
Skin Corrosion/Irritation: Category 2  
Specific Target Organ Toxicity - Single Exposure Category 3

**Signal Word (s)** WARNING

**Hazard Statement (s)** H351 Suspected of causing cancer.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H336 May cause drowsiness or dizziness.

**Pictogram (s)** Health hazard, Exclamation mark



### Precautionary statement – Prevention

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
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.  
P281 Use personal protective equipment as required.

### Precautionary statement – Response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before reuse.  
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.



# Safety Data Sheet

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

**Precautionary statement – Storage** P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**Precautionary statement – Disposal** P337+P313 If eye irritation persists: Get medical advice/attention.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
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 plant.

### 3. Composition/information on ingredients

<b>Chemical</b>	Liquid										
<b>Characterization</b>											
<b>Information on Composition</b>	Derived by chlorination of methyl chloride and subsequent distillation.										
<b>Ingredients</b>	<table border="1"><thead><tr><th><u>Name</u></th><th><u>CAS</u></th><th><u>Proportion</u></th><th><u>Hazard Symbol</u></th><th><u>Risk Phrase</u></th></tr></thead><tbody><tr><td>Dichloromethane</td><td>75-09-2</td><td>100 %</td><td></td><td></td></tr></tbody></table>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>	Dichloromethane	75-09-2	100 %		
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Dichloromethane	75-09-2	100 %									

### 4. First-aid measures

**Inhalation** 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.

**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** 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.

**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 the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

### 5. Fire-fighting measures

**Hazards from Combustion Products** Vapour is heavier than air. May produce irritating and toxic fumes in fire.

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

**Specific hazards arising from the chemical** Material does not burn.

**Hazchem Code** 2Z

### 6. Accidental release measures

**Spills & Disposal** 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.

**Personal Precautions** Evacuate the area of all non-essential personnel.  
Avoid contact with skin and eyes. Avoid ingestion and inhalation of the material.

**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



# Safety Data Sheet

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

**Clean-up Methods - Large Spillages** drum or overdrum. Seek expert advice on handling and disposal.

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

## 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.

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

**Storage Regulations** Refer Australian Standard AS/NZS 4452:1997 'The storage and handling of toxic substances'.

**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).

## 8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	Dichloromethane			174	50	
<b>Other Exposure Information</b>	'SK' 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.					
<b>Appropriate engineering controls</b>	A time weighted average (TWA) has been established for Dichloromethane (Safe Work Australia) of 174 mg/m <sup>3</sup> , (50 ppm). 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.					
<b>Respiratory Protection</b>	In industrial situations 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. These methods should be used in preference to personal protective equipment.					
<b>Eye Protection</b>	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.					
<b>Hand Protection</b>	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.					
<b>Personal Protective Equipment</b>	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Gloves: Ansell Laminar Film (Barrier), or Supported Polyvinyl Alcohol (PVA).					
	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					

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

<b>Footwear</b>	Zealand or other approved standards. Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
<b>Body Protection</b>	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.
<b>Hygiene Measures</b>	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

<b>Form</b>	Liquid
<b>Appearance</b>	Clear, colourless volatile liquid.
<b>Odour</b>	Penetrating chloroform-like odour; characteristic odour.
<b>Melting Point</b>	-95 - -97.0 °C
<b>Boiling Point</b>	~ 39.75 °C @ 760 mm Hg
<b>Solubility in Water</b>	Slightly soluble (20 g/L @ 20 °C).
<b>Solubility in Organic Solvents</b>	Soluble in alcohol, diethyl ether, acetone, DMF.
<b>Specific Gravity</b>	1.326
<b>pH</b>	~7 (20 °C)
<b>Vapour Pressure</b>	475 hPa (20 °C)
<b>Vapour Density (Air=1)</b>	2.9
<b>Evaporation Rate</b>	27.5
<b>Viscosity</b>	0.430 mPas (20 °C)
<b>Partition Coefficient: n-octanol/water</b>	log Pow: 1.25
<b>Flammability</b>	Non flammable.
<b>Auto-Ignition Temperature</b>	605 °C
<b>Flammable Limits - Lower</b>	13%
<b>Flammable Limits - Upper</b>	22%
<b>Molecular Weight</b>	84.93
<b>Other Information</b>	Dielectric constant: 9.1 (@ 20 °C) Dipole moment: 1.6 Debye (@ 20 °C) Heat of evaporation: 329 kJ/kg (@ 40 °C) Refractive index: 1.4246 (@ 20 °C) Saturation concentration: 1549 g/m <sup>3</sup> (@ 20 °C) Heavy vapours

## 10. Stability and reactivity

<b>Chemical Stability</b>	Stable under normal use conditons.
<b>Conditions to Avoid</b>	Moisture. Heat, flames, ignition sources and incompatibles.
<b>Incompatible Materials</b>	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.
<b>Hazardous Decomposition Products</b>	Toxic phosgene gas, oxides of carbon and corrosive hydrogen chloride gas.
<b>Possibility of hazardous reactions</b>	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.



# Safety Data Sheet

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

**Hazardous Polymerization** Will not occur.

## 11. Toxicological Information

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

<b>Ingestion</b>	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.
<b>Inhalation</b>	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.
<b>Skin</b>	Contact with skin may result in irritation, redness and pain. Will have a degreasing action on the skin, possibly followed by secondary 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.
<b>Eye</b>	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.
<b>Carcinogenicity</b>	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.
<b>Chronic Effects</b>	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.
<b>Other Information</b>	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. 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



# Safety Data Sheet

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

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.'

## 12. Ecological information

<b>Bioaccumulative Potential</b>	No bioaccumulation is to be expected (log P(o/w) <1.0).
<b>Short Summary of Assessment of Environmental Impact</b>	The LC50/96-hour values for fish are over 100 mg/l. This material is not expected to be toxic to aquatic life.
<b>Environmental Protection</b>	Do not allow product to enter drains, waterways or sewers.
<b>Acute Toxicity - Fish</b>	LC50 (Pimephales promelas-fathead minnow): 193 mg/l/96 h
<b>Acute Toxicity - Daphnia</b>	EC50 (Daphnia magna-Water flea): 1682 mg/l/48 h

## 13. Disposal considerations

<b>Disposal Considerations</b>	Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and disposed of according to relevant local, state and federal government regulations.
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## 14. Transport information

<b>Transport Information</b>	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.
<b>U.N. Number</b>	1593
<b>UN proper shipping name</b>	DICHLOROMETHANE
<b>Transport hazard class(es)</b>	6.1
<b>Hazchem Code</b>	2Z
<b>Packaging Method</b>	3.8.6.1
<b>Packing Group</b>	III
<b>EPG Number</b>	6B7
<b>IERG Number</b>	37

## 15. Regulatory information



# Safety Data Sheet

Page: 7 of 7

Issue Date : February 2019

Product Name : **DICHLOROMETHANE / METHYLENE CHLORIDE**

Classified as hazardous

<b>Regulatory Information</b>	Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
<b>Poisons Schedule</b>	S5
<b>Hazard Category</b>	Harmful

## 16. Other Information

<b>Literature References</b>	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Chemical Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'. <b>Contact Person/Point</b> Paul McCarthy Ph. (08) 8440 2000 <b>DISCLAIMER STATEMENT:</b> All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Bermuda Industrial Supplies accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
<b>Empirical Formula &amp; Structural Formula</b>	CH <sub>2</sub> Cl <sub>2</sub> ...End Of SDS...