SAFETY DATA SHEET
METHYLENE CHLORIDE

SECTION 1: IDENTIFICATION OF SUBSTANCE OR MIXTURE AND COMPANY

1.1 Product Name : Methylene Chloride

Trade Names / Synonyms : MC; Dichloromethane (DCM); Methylene dichloride; Methylene bichloride; Methane dichloride

CAS Number : 75-09-2

1.2 Manufacturer/supplier : Cosmo Chemistry, Office No. 713, 7th Floor, Millennium Business Hub, Sarthana Jakatnaka, Varachha Main Road, Surat, Gujarat, India - 395006

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Relevant Identified Uses Of The Substance Or Mixture And Uses Advised Against

Identified Uses : Commonly used as solvent

Uses advised against : Do not use product for anything outside of the above specified uses

SECTION 2: HAZARDS IDENTIFICATION

2.1 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
CARCINOGENICITY - Category 2A
Specific target organ toxicity (single exposure) - Category 3 (Target Organs - Central nervous system (CNS))
Specific target organ toxicity (repeated exposure) - Category 2 (Target Organs - Liver, Kidney, Blood)

GHS Label Element - Hazard Pictogram: Exclamation mark, Health hazard

Single 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
H372	May cause damage to organs through prolonged or repeated exposure

Precautionary Statement(s):

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P264	Wash face, hands and any exposed skin 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

P391	Collect spillage
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove lenses, if present and easy to do. Continue rinsing

SECTION 3: COMPOSITION & INFORMATION ON INGREDIENTS

Chemical name	Common name and synonyms	Formula	CAS No.	Concentration % (w/w)
Methylene chloride	DCM; Methylene dichloride; Methylene bichloride; Methane dichloride	CH2Cl2	75-09-2	>= 99.9 - <= 100

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Potential acute health effects

Route	Effect
Eye contact	Causes serious eye irritation
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Route	Adverse symptoms
Eye contact	Pain or irritation, watering, redness
Inhalation	No specific data
Skin contact	Irritation, redness
Ingestion	No specific data

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

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: FIRE FIGHTING MEASURES

General Fire Hazards : Heat may cause the containers to explode.

5.1 Extinguishing media / Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire. Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk.

5.2 Special hazards arising from the substance or mixture : Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

5.3 Hazardous Combustion Products : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Carbon monoxide (CO), Carbon dioxide (CO2), Hydrogen chloride gas, Phosgene.

5.4 Advice for firefighters / Special fire fighting procedures : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire. Exposure to decomposition products may be a hazard to health. In case of fire: Stop leak if safe to do so. Continue water spray from protected position until container stays cool. Use extinguisher to contain the fire. Isolate the source of the fire or let it burn out. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

5.5 Special protective equipment for firefighters : Fire-fighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures : Evacuate area. Provide adequate ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Do not inhale vapors, mist or gas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

6.2 Environmental Precautions : Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

6.3 Methods and material for containment and cleaning up : Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.

6.4 Reference to other sections : Refer to sections 8 and 13.

SECTION 7: HANDLING & STORAGE

7.1 Precautions for safe handling : Only experienced and properly instructed persons should handle containers. Handle in accordance with good industrial hygiene and safety practice. Use proper personal protective equipment when handling material to prevent contact with skin and eyes. Do not inhale vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities : Observe all regulations and local requirements regarding storage of containers. Protect from sunlight. Store in a well-ventilated place. Containers should not be stored in conditions likely to encourage corrosion. Do not store in aluminum containers.

7.3 Storage temperature : Protect from sunlight. Store in a cool and well-ventilated place.

7.4 Storage period : No data available

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION CONTROL PARAMETERS

8.1 Control parameters, e.g. occupational exposure limit values or biological limit values

Occupational Exposure Limits:

Component	Source	Value	Note
Methylene chloride	US (OSHA)	(Vacated) TWA: 500 ppm; (Vacated) STEL: 2000 ppm; Ceiling: 1000 ppm; TWA: 25 ppm; STEL: 125 ppm	OSHA Occupational Exposure Limits (Table Z2)
Methylene chloride	NIOSH IDLH	IDLH: 2300 ppm	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
Methylene chloride	US (ACGIH)	TWA: 50 ppm	ACGIH Threshold Exposure Limit Values
Methylene chloride	Mexico OEL	TWA: 25 ppm; STEL: 100 ppm	

8.2 Exposure controls

Engineering controls : Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Respiratory protection : Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hand protection : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye/Face protection : Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Protective Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection

legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Property	Value
Appearance	Clear colorless liquid
Physical state	Liquid
Colour	Colourless
Odor	Chloroform-like odour, sweet
Molecular Weight	84.93 g/mol
pH (15% aqueous solution)	Specific data not available
Melting point/freezing point	-97 °C / -142.6 °F
Initial boiling point and boiling range	39 °C (102.2 °F)
Evaporation Rate	27.5 (Ether = 1.0)
Flash point	Not applicable
Flammability (solid, gas)	Not applicable
Viscosity	0.42 mPas @ 25°C
Partition coefficient; n-octanol/water	No data available
Vapour pressure	350 mbar @ 20 °C
Vapour density	2.93 (Air = 1.0)
Relative density	1.619
Specific Gravity	1.33
Flammability Range	UEL=23 Vol % & LEL=13 Vol%
Auto-ignition temperature	556 °C / 1032.8 °F
Decomposition temperature	Specific data not available
Water solubility	1.32 gm/100 gm water @ 20°C

SECTION 10: STABILITY & REACTIVITY

10.1 Reactivity : None known, based on information available

10.2 Chemical stability : Stable under ordinary conditions of use and storage.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions.

10.5 Incompatible materials : Strong oxidizers, strong caustics, plastics, rubber, nitric acid, water + heat, and chemically active metals, such as aluminium & magnesium powder, sodium, potassium, and lithium. Avoid contact with open flames and electrical arcs. Liquid methylene chloride will attack some forms of plastics, rubber, and coatings.

10.6 Hazardous decomposition products : Emits highly toxic fumes of phosgene when heated to decomposition. Decomposes in a flame or hot surface to form toxic gas phosgene and corrosive mists of hydrochloric acid. Carbon dioxide and carbon monoxide may form when heated to decomposition.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity

LC50 inhalation rat (mg/l)	53 mg/L (Rat) 6h; 76000 mg/m3 (Rat) 4h

LD50 Oral	> 2000 mg/kg (Rat)
LD50 Dermal	> 2000 mg/kg (Rat)

Sensitization	No information available
Mutagenicity	Mutagenic effects have occurred in microorganisms
Reproductive toxicity	No information available
Teratogenicity	No information available
Specific target organ toxicity (single exposure)	Central nervous system (CNS)
Specific target organ toxicity (repeated exposure)	Kidney, Liver, Blood
Aspiration hazard	Not available
Carcinogenicity	The table below indicates whether each agency has listed this ingredient as a carcinogen

Carcinogenicity table

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	2A	Reasonably Anticipated	A3	X	A3

IARC (International Agency for Research on Cancer): Group 1 - Carcinogenic to Humans; Group 2A - Probably Carcinogenic to Humans; Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicity Program): Known - Known Carcinogen; Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH (American Conference of Governmental Industrial Hygienists): A1 - Known Human Carcinogen; A2 - Suspected Human Carcinogen; A3 - Animal Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens: A1 - Confirmed Human Carcinogen; A2 - Suspected Human Carcinogen; A3 - Confirmed Animal Carcinogen; A4 - Not Classifiable as a Human Carcinogen; A5 - Not Suspected as a Human Carcinogen

Potential acute health effects

Route	Effect
Eye contact	Causes serious eye irritation
Inhalation	Not known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Route	Symptoms
Eye contact	Pain or irritation, watering, redness
Inhalation	Not known significant effects or critical hazards.
Skin contact	Irritation, redness
Ingestion	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure - Potential immediate effect : Not available

Short term exposure - Potential delayed effects : Not available

Long term exposure - Potential immediate effect : Not available

Long term exposure - Potential delayed effects : Not available

Potential chronic health effects - General : No known significant effects or critical hazards.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Suspected of causing genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Symptoms / effects, both acute and delayed : Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Methylene chloride	EC50: > 660 mg/L	Freshwater Algae (Pseudokirchneriella subcapitata)	96 hours
	LC50: 193 mg/L	Freshwater Fish - Pimephales promelas	96 h Flow through
	EC50: 1 mg/L	Microtox	24 hours
	EC50: 2.88 mg/L	Microtox	15 Minutes
	EC50: 140 mg/L	Water Flea (Daphnia magna)	48 h Static

12.2 Persistence and degradability

Persistence and degradability : Persistence is unlikely based on information available.

12.3 Bioaccumulative potential

BCF fish : No information available

Log Pow : 1.25

Log Kow : Not applicable

Bioaccumulative potential : No information available

12.4 Mobility in Soil

Mobility in soil : Is not likely mobile in the environment due to its low water solubility.

Ecology - soil : Will likely be mobile in the environment due to its volatility

12.5 Other adverse effect

No known significant effects or critical hazards

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Product : Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated packaging : Evaporate or incinerate residue at an approved site. Return empty containers to supplier.

SECTION 14: TRANSPORT INFORMATION

Item	DOT	IMDG	IATA
UN number	1593	1593	1593
Proper shipping name	DICHLOROMETHANE	DICHLOROMETHANE	DICHLOROMETHANE
Transport hazard class(es)	6.1	6.1	6.1
Packaging Group	III	III	III
Environmental hazards	No	No	No

Other information : No supplementary information available

Special transport precautions : Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1

SARA 311/312 Hazard Categories : See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X	-	-

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL; 12.5 ppm Action Level; 25 ppm TWA	-

CERCLA : This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb / 1 lb	-

U.S. Department of Homeland Security : This product does not contain any DHS chemicals.

California Proposition 65

This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day; 50 µg/day	Carcinogen

State or local regulations : U.S. - Massachusetts - Right to Know; U.S. - New Jersey - Right to Know; U.S. - New York - Right to Know; U.S. - Pennsylvania - Right to Know

U.S. Department of Transportation

Reportable Quantity (RQ)	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

15.2 International regulations

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Europe - EINEC / ELINCS	200-839-9
Japan - ENCS	Y
China	Y
Taiwan	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines	Y

SECTION 16: OTHER INFORMATION

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Cosmo Chemistry Chemical business shall not be held liable for any damage resulting from handling or from contact with the above product.

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