SRF LIMITED

Issue: 02 Rev: 01 Revision Date: 01.09.2020

SAFETY DATA SHEET

Methyle Chloride

SECTION 1: IDENTIFICATION OF SUBSTANCE OR MIXTURE AND COMPANY

1.1	**Product Name**	:	Methyle Chloride
	Trade Names / Synonyms	:	CHLORO METHANE, MONOCHLOROMETHANE.
	CAS Number	:	74-87-3
1.2	**Manufacturer/supplier**	:	SRF Limited, D-2/1 GIDC Phase-II, PCPIR, Dahej, Tal. Vagra, Dist. Bharuch 392 130, Gujarat (India)
	Further information obtainable from:	:	Vikas Yadav e-mail: vikas.yadav1@srf.com Mobile no. +91-9978445120
1.3	**Emergency Call**		
	Emergency Contact	:	Balwada Ashish +91-9099002602
	Primary Contact	:	Prabhat Kumar +91-7069057087
	SDS Contact	:	Sharma Anil Kumar +91-9687694067

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

Identified Uses:	:	Industrial and professional use. Before use: carry out a risk assessment.
Uses advised against:	:	Do not use product for anything outside of the above specified uses

SECTION 2: HAZARDS IDENTIFICATION

2.1 **Classification according to Regulation (EC) No 1272/2008**

Class	Category	Hazard statements
Flamable Gas	Category 1	H220: Extremely flammable gas.
Pressurized Gas	Liquefied gas	H280: Contains gas under pressure; may explode if heated.
Carciogen	Category 2	H351: Suspected of causing cancer.
STOT RE	category 2	H373: May cause damage to organs through prolonged orrepeated exposure.
Ozone	category 1	H420: Harms public health and the environment by destroying ozone in the upper atmosphere.

2.2 **Label elements**

Signal Word	:	Danger
Hazard Statement(H-statements)		
H220	:	Extremely flammable gas.
H280	:	Contains gas under pressure; may explode if heated.
H351	:	Suspected of causing cancer.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H420	:	Harms public health and the environment by destroying ozone in the upper atmosphere.
H220 Extremely flammable gas.	:	Extremely flammable gas.
P-statements		
P210	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	:	Wear protective gloves, protecΘve clothing and eye protection/face protection.
P260.	:	P260 Do not breathe gas.
P308 + P313	:	P308 + P313 IF exposed or concerned: Get medical advice/atention.
P381	:	P381 Eliminate all ignition sources if safe to do so.
P377	:	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

2.3 **Other hazards**

May be ignited by sparks

Gas/vapour spreads at floor level: ignition hazard

Produces effects on the nervous system

May cause frostbites

Caution! Substance is absorbed through the skin

Causes damage to the central nervous system

Not readily biodegradable in water

SECTION 3: COMPOSITION & INFORMATION ON INGREDIENTS

Chemical name	Common name and synonyms	Formula	CAS No.	EC No.	Concentration % (w/w)
Methyl chloride	CHLORO METHANE, MONOCHLOROMETHANE	CH3Cl	74-87-3	200-817-4	>= 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 : 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. Get medical attention if symptoms occur.

Skin contact : Contact with evaporating liquid may cause frostbite or freezing of skin. Treat for frostbite if necessary by gently warming affected area. Do not rub affected area. Get medical attention immediately.

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately

Ingestion : Ingestion is not considered a potential route of exposure.

4.2 Most Important Symptoms And Effects, Both Acute And Delayed:

4.2.1 Acute symptoms

After inhalation: Central nervous system depression. Dizziness. Drunkenness. Headache. Nausea. Vomiting. EXPOSURE TO HIGH CONCENTRATIONS: Feeling of weakness.
Mental confusion. Movement disturbances. Coordination disorders. Disturbances of consciousness. Accelerated heart action. Low arterial pressure. Rapid respiration. Gastrointestinal complaints. Tremor. Cramps/uncontrolled muscular contractions. Visual disturbances. FOLLOWING SYMPTOMS MAY APPEAR
LATER: Risk of lung oedema.

After skin contact	Frostbites.
After eye contact	Redness of the eye tissue. Frostbites
After ingestion	No effects known

4.2.2 Delayed symptoms

No effects known

4.3 Indication of any immediate medical attention and special treatment needed

If applicable and available it will be listed below

4.4 Indication of any immediate medical attention and special treatment needed

Hazards : Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

Treatment : Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention

Protection of first-aiders : If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

Notes to physician : Treat symptomatically and supportively.
Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution. Avoid administration of adrenaline or other simpatomimeticas similar, as it can produce a cardiac arrhythmia with possible later heart failure.

SECTION 5. FIRE FIGHTING MEASURE

General Fire Hazards : Heat may cause the containers to explode

5.1 **Extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

Suitable extinguishing media

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. Contains gas under pressure. Extremely flammable liquefied gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

5.2 Special hazards arising from the substance or mixture : Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Decomposition may occur. Contact of welding or soldering torch flame with high concentrations of this substance can result in visible changes in the size and colour of the torch flame. This flame effect will only occur in concentrations of this substance well above the recommended exposure limit. Therefore, stop all work and ventilate to disperse vapours

from the work area through flame arrestor or flare before using any open flames.

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 ; Carbonyl difluoride ; Hydrogen fluorid
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. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
6.2	**Environmental Precautions**	:	Prevent further leakage or spillage if safe to do so.
6.3	**Methods and material for containment and cleaning up**	:	Provide adequate ventilation. Eliminate source of ignition. Avoid open flames and high temperatures
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 gases under pressure. Handle in accordance with good industrial hygiene and safety practice. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. When using do not eat, drink or smoke. Use a

pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Never attempt to lift cylinder by its cap. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Damaged valves should be reported immediately to the supplier Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminates particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place.The product should not be mixed with air for leak testing or used with air for any other purpose above atmospheric pressure. Contact with chlorine or other strong oxidizing agents should also be avoided.

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. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.

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 Parameter**

USA (TLV-ACGIH)	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	50 ppm
	Short time value (TLV - Adopted Value)	100 ppm
UK	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005)	50 ppm
	Time-weighted average exposure limit 8 h (Workplace exposure limit) (EH40/2005))	105 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	100 ppm
	Short time value (Workplace exposure limit (EH40/2005))	210 mg/m³

DNEL	Long-term systemic effects inhalation	100 mg/m³
PNEC	Fresh water	0.2 mg/l
	Salt water	0.02 mg/l
	Aqua (intermittent releases)	2 mg/l
	Fresh water sediment	0.556 mg/kg sediment dw
	Soil	0.079 mg/kg soil dw

8.2 **Exposure controls**

Engineering controls : Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls canbe highly effective in protecng workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls, which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source, which keeps a selected hazard “physically” away from the worker, and ventilation that strategically"adds" and "removes" air in the work environment.

Personal protective equipment

Respiratory protection : For rescue and maintenance work in storage, tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Additional protection: Wear approved gloves that are suitable for the task and have been shown to be impervious for the duration of their use

Eye protection : Wear safety glasses with side shields. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Protective measures : When using do not smoke. Self-contained breathing apparatus (SCBA) is required if a large release occurs

Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains.Handle in accordance with good industrial hygiene and safety practice. No smoking in the working area. Avoid long-time contact.

SECTION 9 : PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	:	Clear, colourless liquified gas
Physical state	:	Liquified gas
Colour	:	Colourless
Odor	:	sweet odour
Molecular Weight	:	50.49 g/mol
pH (15 aqueous solution)	:	Not applicable
Melting point/freezing point	:	-98 °C
Initial boiling point and boiling range	:	-24 °C
Flash point	:	None (Does not Flash)
Flammability (solid, gas)	:	Extremely flammable gas
Vapour pressure	:	4900 hPa @ 20 °C
Vapour density	:	1.7 (Air = 1.0)
Reletive density		No data available
Flammability Range	:	8.1 - 17.4 vol % in air
Auto-ignition temperature	:	632°C (1169.6°F).
Log Kow	:	0.91 Experimental value
Solubility	:	Water 5.347g/l (24.9 ºC)
Decomposition temperature	:	> 370 °C

SECTION 10: STABILITY & REACTIVITY

10.1	**Reactivity**	:	This product is stable May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard
10.2	**Chemical stability**	:	Stable under recommended storage conditions
10.3	**Possibility of hazardous reactions**	:	Polymerization 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. Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.
10.5	**Incompatible materials:**	:	Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
10.6	**Hazardous decomposition products:**	:	Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (phosgene, hydrogen chloride, chlorine). Decomposes slowly on exposure to water

(moisture): release of corrosive gases/vapours (hydrogen chloride). Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen).

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Actuate Toxixity

LC50 inhalation rat (mg/l)	Data waiving
LC50 inhalation rat	> 21800 mg/m³ 4Hours
ATE US (vapors)	Data waiving
Skin corrosion/irritation	Not classified as acute toxic in contact with skin
Serious eye damage/irritation	Not classified as irritating to the eyes
Respiratory or skin sensitization	Not sensitizing for skin
Germ cell mutagenicity	Not classified for mutagenic or genotoxic toxicity
Carcinogenicity	Suspected of causing cancer if inhaled
Reproductive toxicity	Not classified for reprotoxic or developmental toxicity
Specific target organ toxicity-single exposure	Not classified
Specific target organ toxicity – repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Present when release into atmoshphere

12. ECOLOGICAL INFORMATION

12.1 Toxicity

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt	Value determination
Acute toxicity fishes	LC50		550 mg/l	96 h	Lepomis macrochirus	Static system		
	LC50	ECOSAR	396 mg/l	96 h	Pisces		Fresh water	Calculated value
Acute toxicity invertebrates	EC50	OECD 202	200 mg/l	48 h	Daphnia magna	Semi Static system	Fresh water	Experimental value;GLP

Toxicity algae and other aquatic plants	EC50		1450 mg/l	48 H	Scenedesmus	
	EC50	ECOSAR	231 mg/l	96 h	Algae	Calculated value

Conclusion

Slightly harmful to invertebrates (Daphnia)

Slightly harmful to algae

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2 **Persistence and degradability**

Biodegradation water

Method	Value	Duration	Value determination
OECD 301D: Closed Bottle Test	1 %	28 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.91	360 day(s)	-	Experimental value

Conclusion : Not readily biodegradable in water

12.3 **Bioaccumulative potential**

Log Kow

Method	Remark	Value	Temperature	Value determination
		0.91		Experimental value

Conclusion :Low potential for bioaccumulation (Log Kow < 4)

12.4 **Mobility in soil**

Not applicable (gas)

12.5 **Results of PBT and vPvB assessment**

Substance does not meet the criteria of PBT, nor the criteria of vPvB according to Annex XIII of Regulation (EC) No 1907/2006, so is neither PBT nor vPvB.

12.6 **Other adverse effect**

Global warming potential (GWP)

Included in the list of substances which may contribute to the greenhouse effect (IPCC)

Ozone-depleting potential (ODP)

Chemical name	Trade name	Ozone-depleting potential	Group	Formula
Chloromethane (Methyl chloride)	Methyl chloride	0.02		CH3Cl

Classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Product : 1) Mechanical recovery
2) Flare-Off at safe location (Vapours)
3) Exhaust to atmosphere in safe location (No open flames)
Comply with applicable Federal, State/Provincial and Local Regulations

Contaminated packaging : Evaporate or incinerate residue at an approved site.Return empty containers to supplier.
Ensure damaged or non-returnable cylinders are gas-free before disposal.

SECTION 14: TRANSPORT INFORMATION

ITEM	ADR	IMDG	IATA
UN number	1063	1063	1063
Proper shipping name	Methyl chloride (refrigerant gas R40)	Methyl chloride (refrigerant gas R 40)	Methyl chloride (refrigerant gas R 40)
Transport hazard class(es)/ Labelling Number	 2.1	 2.1	 2.1
Packaging Instruction	-	-	-
Environmental hazards	No	No	No

Additional information

Other information : No supplementary information available

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers:

	- Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

15. REGULATORY INFORMATION

Methyl chloride (74-87-3) is found on the following regulatory list

15.1 US Federal regulations

Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Fire hazard Sudden release of pressure Immediate (acute) health hazard Delayed (chronic) health hazard

15.2 International regulations

Australia Inventory of Chemical Substances (AICS)	International Air Transport Associason (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines	Y
USA TSCA	Y
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 – Developmental Toxicity	No
U.S. - California - Proposition 65 – Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 – Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
Legend	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory

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. SRF Limited-Chemical business shall not be held liable for any damage resulting from handling or from contact with the above product