

SAFETY DATA SHEET



Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



METHYL CHLORIDE, TECHNICAL GRADE

SDS No.: M47038
North America EN

Rev. Date: 07-Jun-2021

SECTION 1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

| | |
|--|---|
| Company Identification: | Occidental Chemical Corporation 14555 Dallas Parkway, Suite 400 Dallas, Texas 75254-4300 |
| 24 Hour Emergency Telephone Number: | 1-800-733-3665 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186 |
| To Request an SDS: | MSDS@oxy.com or 1-972-404-3245 |
| Customer Service: | 1-800-752-5151 or 1-972-404-3700 |
| Product Identifier: | METHYL CHLORIDE, TECHNICAL GRADE |
| Synonyms: | Chloromethane; Monochloromethane |
| Product Use: | Silicon manufacturing; Chemical processing |
| Restrictions on Use (EU): | <ul style="list-style-type: none">• Prohibited substance in cosmetics - EU Cosmetic Regulation (1223/2009) Annex II• Report to EU according to Article 27; see Annex II, Part B, footnote 1 as an ozone depleting substance (ODS)• European Trade Union Confederation - Trade Union Priority List for REACH Authorisation |
| Other Global Restrictions on Use: | Methyl Chloride may be restricted and/or prohibited for use in consumer products. See local, regional, and/or national regulations specific to consumer regulations. |
| Chemical Family: | Halogenated Organic Chemicals |

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SECTION 2. HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW:

Color: Colorless
Physical State: Compressed, liquefied gas
Odor: Faint sweet ethereal odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: HARMFUL IF INHALED. HARMFUL IF SWALLOWED. MAY CAUSE DROWSINESS OR DIZZINESS. CAUSES DAMAGE TO NERVOUS SYSTEM AND CARDIOVASCULAR SYSTEM. MAY CAUSE LIVER AND KIDNEY DAMAGE. CAUSES DAMAGE TO LIVER, KIDNEY, CENTRAL NERVOUS SYSTEM (CNS) THROUGH PROLONGED OR REPEATED EXPOSURE. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CONTACT WITH LIQUID OR RAPIDLY EXPANDING GAS MAY CAUSE FROSTBITE TO EYES AND SKIN. MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

PHYSICAL HAZARDS: FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE, MAY EXPLODE IF HEATED.

PRECAUTIONARY STATEMENTS: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/ sparks/ open flames/ hot surfaces - No smoking. Do not breathe gas. Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. Do not enter confined spaces unless adequately ventilated. Use personal protective equipment as required. Use only equipment and hoses approved for this material. Do not store in aluminum/zinc/magnesium container or use aluminum/zinc/magnesium fittings or transfer lines. Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Keep separated from incompatible substances (see Section 7 or Section 10 of SDS).

ADDITIONAL HAZARD INFORMATION: Direct contact with liquid may cause frostbite to exposed tissue (eyes, skin, etc.). Methyl Chloride is a neurotoxin. Subacute, sub-chronic and chronic exposures to methyl chloride may cause functional changes in the central nervous system. Simple Asphyxiant - May displace oxygen and cause rapid suffocation.

HAZARD CLASSIFICATION:

| | |
|---|---|
| GHS: PHYSICAL HAZARDS: | Flammable Gas - Category 1B [Flammable Gas] Gas Under Pressure - Liquefied |
| GHS: ACUTE TOXICITY - INHALATION: | Category 4 - Harmful if inhaled |
| GHS: ACUTE TOXICITY - ORAL: | Category 4 - Harmful if swallowed |
| GHS: TARGET ORGAN TOXICITY (SINGLE | Category 1 - Causes damage to Central Nervous System |

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|--|---|
| EXPOSURE): | (CNS) and Cardiovascular System Category 2 - May cause damage to liver and kidneys Category 3 - May cause drowsiness or dizziness |
| GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE): | Category 1 - Causes damage to liver, kidney, and central nervous system through prolonged or repeated exposure |
| GHS: GERM CELL MUTAGENICITY: | Category 2 - Suspected of causing genetic defects |
| GHS: REPRODUCTION TOXIN: | Category 1B - May damage fertility or the unborn child |

GHS SYMBOL: Flame, Gas cylinder, Health hazard, Exclamation mark

GHS SIGNAL WORD: **DANGER****GHS HAZARD STATEMENTS:****GHS - Physical Hazard Statement(s)**

- Flammable gas
- Contains gas under pressure; may explode if heated

GHS - Health Hazard Statement(s)

- Harmful if swallowed
- Harmful if inhaled
- May cause drowsiness or dizziness
- Suspected of causing genetic defects
- May damage fertility or the unborn child
- Causes damage to nervous system and cardiovascular system
- May cause damage to liver and kidneys
- Causes damage to Liver, Kidney, and Central Nervous System through prolonged or repeated exposure

GHS - Precautionary Statement(s) - Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Keep away from heat/sparks/open flames/hot surfaces - No smoking
- Do not breathe gas
- Wash skin and contaminated clothing thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Use personal protective equipment as required

GHS - Precautionary Statement(s) - Response

- Leaking gas fire: Do not extinguish, unless leak can be stopped safely
- Eliminate all ignition sources if safe to do so
- IF SWALLOWED: Call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER if you feel unwell
- Rinse mouth if ingested

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- IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
 - IF INHALED: Call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER if you feel unwell
 - Specific treatment if inhaled (see First Aid information on product label and/or Section 4 of the SDS)
 - IF exposed or concerned: Get medical advice/attention
 - Get medical advice/attention if you feel unwell

GHS - Precautionary Statement(s) - Storage

- Store in a well-ventilated place. Keep container tightly closed
- Store in a secure manner
- Protect from sunlight

GHS - Precautionary Statement(s) - Disposal

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

Hazard Not Otherwise Classified (HNOC)-Health

- Thermal Hazard: Contact with liquid or rapidly expanding gas may cause frostbite to contacted tissue (eyes, skin, etc.)
- Methyl Chloride is a neurotoxin. Subacute, sub-chronic and chronic exposures to methyl chloride may cause functional changes in the central nervous system
- May displace oxygen and cause rapid suffocation

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS Number | Percent [%] |
|-----------------|------------|-------------|
| Methyl Chloride | 74-87-3 | 99.9 - 100 |

SECTION 4. FIRST AID MEASURES

INHALATION: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician. See Notes to Physician below and Section 11 for more information.

SKIN CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (100-105 °F, 38-41 °C). If irritation occurs, contact doctor/physician.

EYE CONTACT: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

INGESTION: IF SWALLOWED: Call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER if you feel unwell. Rinse mouth.

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Most Important Symptoms/Effects (Acute and Delayed):

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Acute Symptoms/Effects:

Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. Onset of symptoms may be delayed from exposure for many hours.

Skin: Direct skin contact may cause frostbite: frozen skin, redness, edema, blisters. Exposure to skin may cause mild skin irritation: redness, dry skin.

Eye: Direct eye contact may cause frostbite (opaque cornea, edema). Eye exposure may cause slight eye irritation, pain, conjunctivitis, tearing, clouding of cornea.

Ingestion (Swallowing): Ingestion is not a likely route of exposure because this material is a gas at normal conditions.

Delayed Symptoms/Effects:

- While inhalation is the primary exposure route, the respiratory tract is not generally injured. However, in severe cases inhalation may cause pulmonary congestion
- May cause genetic defects
- May damage fertility or the unborn child

Target Organ Effects: Mild exposures can result in delayed onset of Central Nervous System (CNS) effects (inebriation or drunkenness) that may continue several hours after the exposure ends. Significant and repeat exposures may produce reduced renal output (oliguria), elevation of liver enzymes, renal (kidney) failure, and liver failure. May cause acute renal (kidney) failure and liver failure.

Protection of First-Aiders: This is a highly flammable material, handle with extreme care. Avoid contact with the skin and the eyes. Direct contact with liquid or rapidly expanding gas may cause frostbite to contacted tissue (eyes, skin, etc.). Do not breathe gas, fumes, vapor, mist, or spray. Use personal protective equipment (PPE). Refer to Section 8 for specific PPE recommendations. Consider the possibility of high levels of gas in confined/unventilated spaces or low-lying areas.

Notes to Physician: Most cases of intoxication involved concentrations above 500 ppm. Typically, individuals are not uncomfortable during the exposure, and present with nausea, abdominal pain, vomiting, and diarrhea several hours after the exposure. The effects may be delayed and last longer than a similar intoxication with ethanol (alcohol). More common CNS symptoms include drowsiness and fatigue, confusion, headache, ataxia, vertigo, blurred or double vision, tremor, muscular cramping, muscular rigidity, and sleep disturbances. The most severely impacted may enter coma, with or without seizures. Some exposures have been fatal. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material.

Interaction with Other Chemicals Which Enhance Toxicity: May amplify the effects of other agents that cause Central Nervous System (CNS) and respiratory system depression. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen.

Medical Conditions Aggravated by Exposure: Central Nervous System (CNS) disorders. Liver disorders. Kidney disorders.

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SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant sources and flash back. Containers may rupture or explode if exposed to heat. Under fire conditions, may produce irritating and/or toxic gases.

Explosive properties: During a spill, escaping unburned methyl chloride is potentially explosive. Methyl chloride reacts with aluminum to form trimethyl aluminum, a pyrophoric material. Methyl chloride creates an explosive mixture on contact with magnesium, sodium and other alkali metals; in contact with sodium-potassium alloys, it is impact sensitive and may result in an explosion.

Extinguishing Media: Use dry chemical, carbon dioxide, steam or water fog. Water spray can be used to cool adjacent equipment, disperse vapors and absorb hazardous decomposition products. **SMALL FIRE:** Dry chemical or CO₂. **LARGE FIRE:** Water spray or fog. Move containers from fire area if you can do it without risk. **FIRE INVOLVING TANKS:** Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. **ALWAYS** stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Unsuitable Extinguishing Media: No information available.

Specific Hazards: When burned in air, methyl chloride forms hydrogen chloride and phosgene, both of which are extremely hazardous. Under prolonged exposure to fire or intense heat the containers may rupture violently and rocket.

Unusual Hazards: Methyl chloride is generally stable when dry. In the presence of moisture, methyl chloride hydrolyzes to form corrosive hydrochloric acid. Hydrochloric acid attacks most metals and forms hydrogen gas, which is explosive.

Fire Fighting: Eliminate all sources of ignition. Water may be ineffective as an extinguishing media. Move container from fire area if it can be done without risk. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this can't be done, then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode.

| Component | Immediately Dangerous to Life/ Health (IDLH) |
|----------------------------|--|
| Methyl Chloride 74-87-3 | 2000 ppm IDLH |

Hazardous Combustion Products: Oxides of carbon; Chlorine; Hydrogen chloride; Phosgene; Methanol

Products Formed During Combustion and Thermal Degradation: When heated to decomposition, emits highly toxic fumes of chlorine

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Sensitivity to Mechanical Impact: Methyl chloride is impact sensitive when in contact with sodium-potassium alloys and may result in an explosion.

Sensitivity to Static Discharge: Electrostatic charges may build up during handling and may form ignitable vapor-air mixtures in storage containers. Ground equipment in accordance with industry standards and best practices such as NFPA 77 [Recommended Practices on Static Electricity (2007)] and American Petroleum Institute (API) RP Recommended Practice 2003 [Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents (2015)].

Lower Flammability Level (air): 8.1 %

Upper Flammability Level (air): 17.2 %

Flash point: -49.9 °F (-45.5 °C) - CC

Method: CC - Closed Cup

Auto-ignition Temperature: 1170 °F (632.2 °C)

GHS: PHYSICAL HAZARDS:

- Flammable Gas - Category 1B [Flammable Gas]
- Gas Under Pressure - Liquefied

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: This material is highly flammable, handle with extreme care. Evacuate unnecessary personnel and eliminate all sources of ignition. Do not breathe dust, fume, gas, mist, vapors, or spray. Avoid contact with skin and eyes. May be absorbed through the skin. Contact with liquid may cause frostbite. Wear appropriate personal protective equipment recommended in Section 8 of the SDS. Stay upwind and keep out of low areas. Methyl chloride vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Methyl chloride is difficult to detect in air and odor cannot be relied upon as warning of concentrations that are dangerous to health.

Personal Protective Equipment: When working around this material, consider the use of flame resistant and anti-static safety clothing and footwear. For Unknown Concentrations or exposures above IDLH (Immediately Dangerous to Life or Health) - Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece. See Section 8 for information on personal protective equipment.

Emergency Procedures: After evacuating the area, stop the gas flow if safe to do so. If a fire occurs, it should not be extinguished until the leak is isolated and stopped. Escaping unburned methyl chloride is potentially explosive. Once the gas flow has been stopped, dry chemical, CO₂ and water fog can be used to extinguish the fire. Water spray can be used to cool adjacent equipment, disperse vapors and absorb hazardous decomposition products.

Environmental Precautions: Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

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Methods and Materials for Containment, Confinement, and/or Abatement: Take action to protect personnel. Evacuate unnecessary and unprotected personnel. Isolate hazard area and deny entry. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustible gas engine vehicles away from the release area. Vapors or gases may ignite at distant ignition sources and flash back. Ventilate closed spaces before entering. Stop leak, if possible, without personal risk. Shut off ventilation system if needed. Reduce vapors with water spray. Evacuation of surrounding area may be necessary for large spills. Prevent spreading of vapors through sewers, ventilation systems, and confined areas. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

Additional Disaster Prevention Measures: The primary hazard from a large release of methyl chloride is fire. Eliminate all sources of ignition immediately if a release of methyl chloride should occur. The public should be warned of any downwind vapor explosion hazards. Vapors may travel long distances and ignite or cause a vapor flash back to occur.

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling: This material is highly flammable, handle with extreme care. Keep away from heat, sparks, flame and other sources of ignition. Ground any equipment used in handling. Use non-sparking tools and equipment. All energized electrical equipment must be designed in accordance with the electrical classification of the area. Do not breathe gas, vapors, or spray mist. Avoid contact with skin, eyes, and clothing. Can be absorbed through skin. Direct contact may cause frostbite to exposed tissue (skin, eyes, etc.). Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Methyl chloride odors are reported not to be noticeable at potentially dangerous concentrations.

Technical measures/precautions: Threaded piping and cast or ductile iron equipment should NOT be used in methyl chloride service. Electrical equipment and wiring used in areas where methyl chloride is processed must meet local and national electrical code requirements. In general, this equipment should meet NFPA Class I, Division 2 hazardous location requirements for lighting, electric motors, instrumentation and other electric powered equipment.

Other precautions: Under no circumstances should compressed air be used to purge methyl chloride. The use of air for removal of the residual methyl chloride could create a flammable situation of methyl chloride vapors in air mixture.

Storage:

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Store in a cool, dry area. Store in a well-ventilated area. Do not enter confined spaces without following proper confined space entry procedures. Do not enter confined spaces unless adequately ventilated. Avoid heat, flames, sparks and other sources of ignition. Aluminum, zinc or magnesium equipment should not be used for storage or transfer. Grounding and bonding required. May be subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures: Methyl chloride should be stored in steel pressure tanks built and tested to applicable ASME code. In cold climates, storage tanks should be rated for vacuum service. Additional local code requirements must be

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incorporated in the construction of the storage tanks.

Incompatible Substances: Oxidizing Agents (such as Perchlorates, Peroxides, Permanganates, Chlorates, Nitrates, Chlorine, Bromine), Amines, Amides, Magnesium, Sodium, Zinc, Potassium, Aluminum, Alkali metals

Packaging or Materials of Construction: Cast or ductile iron and brass or copper-bearing alloys should not be used in methyl chloride service. Aluminum and aluminum alloys must not be used in methyl chloride storage or handling systems since trimethyl aluminum is formed when methyl chloride contacts aluminum. Zinc and magnesium alloys also must be avoided in equipment or piping for methyl chloride service. Gasket materials in methyl chloride service should be Gylon 3504 or Durlon 9000. Other gasket materials may be acceptable, but chemical compatibility must be verified prior to use.

GHS: PHYSICAL HAZARDS:

- Flammable Gas - Category 1B [Flammable Gas]
- Gas Under Pressure - Liquefied

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**REGULATORY EXPOSURE LIMIT(S):**

Listed below for the product components that have regulatory occupational exposure limits (OEL's).

| Component | OSHA Final PEL TWA | OSHA Final PEL STEL | OSHA Final PEL Ceiling |
|---|--------------------|---------------------|------------------------|
| Methyl Chloride 74-87-3 (99.9 - 100 %) | 100 ppm | ----- | 200 ppm |

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit
OSHA Ceiling values indicate the exposure limit, which at no time shall be exceeded. Instantaneous monitoring is the preferred method to determine compliance with OSHA Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time during the working day [29CFR1910.1000(a)(1)]

| Component | Canada - TWAs | Canada - STELs | Canada - Ceilings |
|---|--|--------------------------|-------------------|
| Methyl Chloride 74-87-3 (99.9 - 100 %) | Ontario - 50 ppm (TWA) Alberta - 50 ppm (TWA) Alberta - 103 mg/m ³ (TWA) British Columbia - 50 ppm (TWA) | Ontario - 100 ppm (STEL) | ----- |

NON-REGULATORY EXPOSURE LIMIT(S):

Listed below for the product components that have non-regulatory occupational exposure limits (OELs).

| Component | ACGIH TWA | ACGIH STEL | ACGIH Ceiling | Skin Absorption - | OSHA TWA (Vacated) | OSHA STEL (Vacated) | OSHA Ceiling |
|-----------|-----------|------------|---------------|-------------------|--------------------|---------------------|--------------|
| | | | | | | | |

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| | | | | ACGIH | | | (Vacated) |
|--|--------|---------|-------|--------|---------------------------------|----------------------------------|-----------|
| Methyl Chloride 74-87-3 (99.9 - 100 %) | 50 ppm | 100 ppm | ----- | Listed | 50 ppm 105 mg/m ³ | 100 ppm 210 mg/m ³ | ----- |

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS: Use closed systems. Use explosion proof equipment and lighting in classified/controlled areas. All process sampling must be performed using a closed loop sampling system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. Thoroughly clean and dry contaminated clothing before reuse. An apron, headgear and/or face-shield should be worn where liquid contact is possible.

Hand Protection: Wear chemical resistant, insulated gloves that protect against both chemical exposure and freeze burns. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Fire resistant clothing, Saranex®, Barricade®, Viton®, Responder®, Trelchem®, and Tychem®, Protective Gloves: Do not use PVC or polyethylene, Methyl chloride attacks natural rubber, CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to leak without warning

Respiratory Protection: At this time, there is no known cartridge/canister for use in methyl chloride contaminated air at or above exposure limits for air purifying respirators. Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved supplied air respirator is required. When the level may be above the IDLH, use an SCBA or pressure-demand supplied air with an auxiliary self-contained escape pack. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

| Component | Immediately Dangerous to Life/ Health (IDLH) |
|---|--|
| Methyl Chloride 74-87-3 (99.9 - 100 %) | 2000 ppm IDLH |

Other Protective Equipment: An emergency eyewash fountain and quick drench shower should be provided in the immediate work area. Explosion-proof ventilation should be provided to keep concentrations below explosive limits.

HYGIENE MEASURES: Measurement by continuous sampling devices are recommended or as a minimum, frequent sampling using accepted industrial hygiene methods and procedures. Surveys should be conducted routinely for the purpose of detecting leak sources. Portable direct reading instruments calibrated for methyl chloride should be used for leak detection. Leaks should be identified and repaired without delay. Only trained and properly protected

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personnel should be allowed to enter areas where methyl chloride is present.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--|
| Physical State: | Compressed, liquefied gas |
| Color: | Colorless |
| Odor: | Faint sweet ethereal odor |
| Molecular Weight: | 50.49 |
| Molecular Formula: | CH ₃ Cl |
| Chemical Family: | Halogenated Organic Chemicals |
| pH: | Not applicable |
| Melting Point/Range: | -97.6°C |
| Boiling Point °C | -23.7 °C |
| Flash point: | -49.9 °F (-45.5 °C) - CC |
| Method: | CC - Closed Cup |
| Vapor Pressure: | 4300 mmHg @ 25 °C |
| Vapor Density (air=1): | 1.8 |
| Relative Density/Specific Gravity (water=1): | 0.911 g/cm ³ @ 25 °C (77 °F) |
| Water Solubility: | 5040 mg/L @ 25 °C |
| Partition Coefficient (n-octanol/water): | Log Kow = 0.91 |
| Auto-ignition Temperature: | 1170 °F (632.2 °C) |
| Decomposition Temperature: | No data available |
| Odor Threshold [ppm]: | 10 ppm (Methyl chloride odors are reported to be not noticeable at potentially dangerous concentrations.) |
| Evaporation Rate (ether=1): | Not applicable |
| Volatility: | 100% |
| Flammability (solid, gas): | Highly flammable |
| Lower Flammability Level (air): | 8.1 % |
| Upper Flammability Level (air): | 17.2 % |
| Viscosity (Liquid): | 0.332 centipoise @ -34°C, 0.320 centipoise @ -29°C |
| Dynamic viscosity: | 0.00027 Pa s @ 20°C (liquid, 0.5 MPa) |
| Surface tension: | 16.2 dynes/cm = 0.0162 N/m at 20°C |

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Methyl chloride is generally stable when dry. In the presence of moisture, methyl chloride hydrolyzes to form corrosive hydrochloric acid. Hydrochloric acid attacks most metals and forms hydrogen gas, which is explosive.

Reactivity: Methyl chloride reacts with aluminum to form trimethyl aluminum, a pyrophoric material. Methyl chloride creates an explosive mixture on contact with magnesium, sodium, and other alkali metals. In contact with sodium-potassium alloys, methyl chloride is impact sensitive and may result in an explosion. Methyl chloride attacks

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natural rubber. Methyl Chloride can react vigorously with oxidizing agents.

Possibility of Hazardous Reactions: Avoid heat, flames, sparks, and other sources of ignition. Containers may rupture or explode if exposed to heat. Will attack some forms of plastics, rubber, and coatings. Avoid contact with incompatible substances and conditions due to generation of phosgene and other toxic and irritating substances. May react explosively with aluminum in any form. In the presence of moisture, methyl chloride hydrolyzes to form corrosive hydrochloric acid. Methyl chloride creates an explosive mixture on contact with magnesium, sodium, and other alkali metals.

Conditions to Avoid (e.g., static discharge, shock, or vibration): In contact with sodium-potassium alloys, methyl chloride is impact sensitive and may result in an explosion.

Incompatible Substances: Oxidizing Agents (such as Perchlorates, Peroxides, Permanganates, Chlorates, Nitrates, Chlorine, Bromine). Amines. Amides. Magnesium. Sodium. Zinc. Potassium. Aluminum. Alkali metals.

Hazardous Decomposition Products: Oxides of Carbon, Chlorine, Hydrogen chloride, Phosgene, Methanol.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:

TOXICITY:

Methyl chloride is a potent narcotic and has been used as an anesthetic agent. Exposure to less than the current occupational exposure limit (100 ppm, 8 hour TWA) was not associated with any significant impairment. Most cases of intoxication involve concentrations above 500 ppm. In most cases, exposure concentration and duration are not available. The most common consequences of excessive single or repeated exposures have been functional changes in the central nervous system. They have been described as drunkenness as from ingested ethanol (alcohol), but are much longer in persistence. The symptoms of overexposure may include a staggering gait, weakness, drowsiness, double vision, headache, apathy, anorexia, nausea, vomiting, abdominal pain, diarrhea, personality changes, spasms, tremors, loss of memory, paralysis, confusion, unconsciousness, and death. Other organ systems can be affected in persons showing marked central nervous system changes: these include the kidneys, liver, and particularly the lungs. Documentation from historical exposures indicates that pulmonary complications may arise after very significant exposures, likely due to fluid retention from renal failure. Although recovery usually appears complete, at least one case report indicates adverse effects may be permanent. The onset of elevated liver enzymes and indicators of renal impairment may be delayed.

ACUTE TOXICITY:

In humans, there are reports of (a) "dizziness, frailty, blurred vision, ataxia, lethargy, insomnia, confusion, paresthesia, neurosis and depressive symptom following inhalation exposure", (b) "nausea, severe headache, drunkenness, confusion, somnolence, ataxia and dysphasia following ingestion" and (c) "abnormal ECG, tachycardia and increased heart rate, decreased blood pressure and increase of relative risk of death by cardiovascular diseases". Six (6)-hour inhalation tests were conducted with mice and rats. Hematuria, degeneration and necrosis of the proximal convoluted tubules and hepatic necrosis was reported for mice at a dose level of 1000 ppm (4-hour equivalence: 1225 ppm) (ACGIH (2001)), and hepatic toxicity and renal toxicity was reported in mice at dose level of 2000 ppm (4-hour

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equivalence: 2690 ppm) or higher concentrations (CICAD 28 (2000)). Similar findings were also reported in rats at a dose level of 3500 ppm (4-hour equivalence: 4287 ppm) or higher (ACGIH (2001)).

Eye contact: Eye contact may cause frostbite, tearing, redness, pain, conjunctival irritation, corneal edema, whitening, and decreased vision.

Skin contact: Direct skin contact with liquid or rapidly expanding gas may cause frostbite. Skin contact may cause slight irritation, redness.

Inhalation: Inhalation of this material may cause lightheadedness, loss of consciousness, palpitations, low blood pressure, arrhythmia, arrest, nausea, vomiting, abdominal pain, headache, blurry vision, double vision, personality changes, weakness, stupor, incoordination (disequilibrium, ataxia), coma, respiratory arrest.

Ingestion: Not a likely route of exposure.

CHRONIC TOXICITY:

Cerebellar damage and neurofunctional impairment and adverse effects on the kidney have been observed in experimental animals. Changes in liver weights and, in some cases, liver damage, have been observed in experimental animals. Studies in experimental animals have shown adverse effects on the spleen in several species. Effects on the spleen have usually been at neurotoxic levels of exposure; therefore, the relevance to humans is not clear.

Chronic Effects: Causes damage to the central nervous system, liver, and kidneys through prolonged or repeated exposure. May cause genetic defects. May damage fertility or the unborn child.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. Onset of symptoms may be delayed from exposure for many hours.

Skin: Direct skin contact may cause frostbite: frozen skin, redness, edema, blisters. Exposure to skin may cause mild skin irritation: redness, dry skin.

Eye: Direct eye contact may cause frostbite (opaque cornea, edema). Eye exposure may cause slight eye irritation, pain, conjunctivitis, tearing, clouding of cornea.

Ingestion (Swallowing): Ingestion is not a likely route of exposure because this material is a gas at normal conditions.

Interaction with Other Chemicals Which Enhance Toxicity: May amplify the effects of other agents that cause Central Nervous System (CNS) and respiratory system depression. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen.

GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed

GHS: ACUTE TOXICITY - INHALATION: Category 4 - Harmful if inhaled

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):

Category 1 - Causes damage to Central Nervous System (CNS) and Cardiovascular System

Category 2 - May cause damage to liver and kidneys

Category 3 - May cause drowsiness or dizziness

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GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):

Category 1 - Causes damage to liver, kidney, and central nervous system through prolonged or repeated exposure

GHS: GERM CELL MUTAGENICITY: Category 2 - Suspected of causing genetic defects**GHS: REPRODUCTION TOXIN:** Category 1B - May damage fertility or the unborn child**TOXICITY DATA:****PRODUCT TOXICITY DATA:**

The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

| Component | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|-----------------|------------------|-------------------|---|
| Methyl Chloride | 1800 mg/kg (Rat) | No data available | 5300 mg/m ³ (2567 ppm) (4-hr Rat) |

Skin/Eye Irritation/Corrosion: Contact with liquid or rapidly expanding gas may cause frostbite to contacted tissue (eyes, skin, etc.).**Skin Absorbent / Dermal Route:** Yes.

The level of dermal absorption from the gaseous phase is expected to be low; however, ACGIH list methyl chloride with a skin notation.

RESPIRATORY OR SKIN SENSITIZATION: Not classified as a skin or respiratory sensitizer per GHS criteria.**CARCINOGENICITY:** There is inadequate evidence for the carcinogenicity of methyl chloride in animals and humans; therefore, methyl chloride is not classifiable under GHS as to its carcinogenicity.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): In humans, there are reports of (a) "dizziness, frailty, blurred vision, ataxia, lethargy, insomnia, confusion, paresthesia, neurosis and depressive symptom following inhalation exposure", (b) "nausea, severe headache, drunkenness, confusion, somnolence, ataxia and dysphasia following ingestion" and (c) "abnormal ECG, tachycardia and increased heart rate, decreased blood pressure and increase of relative risk of death by cardiovascular diseases". Based on the data, the substance was classified into Category 1 (nervous system, cardiovascular system) and Category 3 - Central Nervous System (CNS). Six (6)-hour inhalation tests were conducted with mice and rats. Hematuria, degeneration and necrosis of the proximal convoluted tubules and hepatic necrosis was reported for mice at a dose level of 1000 ppm (4-hour equivalence: 1225 ppm) (ACGIH (2001)), and hepatic toxicity and renal toxicity was reported in mice at dose level of 2000 ppm (4-hour equivalence: 2690 ppm) or higher concentrations (CICAD 28 (2000)). Similar findings were also reported in rats at a dose level of 3500 ppm (4-hour equivalence: 4287 ppm) or higher (ACGIH (2001)). Since the effects in mice were observed at dose levels within the guidance value range for Category 1; however, were in animals, the substance was classified into Category 2 (liver, kidney).

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): Under normal conditions methyl chloride exists as a gas. Therefore, the only relevant route of exposure is via inhalation. Effects from long term human exposure to methyl chloride have been reported to include liver cirrhosis, renal damage, and nervous system dysfunction. Data on subacute, sub-chronic and chronic methyl chloride exposure are available from experiments with mice, rats and dogs (CIIT, 1979 and 1981, Morgan et al., 1982; McKenna et al., 1981; Burek et al., 1981). The kidneys, the central nervous system, (see Neurotoxicity below) and the liver are identified as target organs of methyl chloride.

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GERM CELL/IN-VITRO MUTAGENICITY: Available studies demonstrate that at high concentrations methyl chloride appears to be directly genotoxic in in-vitro systems, both in bacteria and mammalian cells. However, in in-vivo studies, methyl chloride exhibited cytotoxic rather than genotoxic effects. Because methyl chloride is similar in structure activity relationship to known germ cell mutagens and supported by in-vitro mutagenicity tests, GHS category 2 classification will be assigned.

REPRODUCTIVE TOXICITY: A two-generation reproduction study in male and female rats was carried out at methyl chloride concentrations of 0, 150, 475 or 1500 ppm. In the F0 generation, exposures to 1500 ppm resulted in sterility (decreased spermatogenesis) that was consistent with severe testicular degeneration (10/10) and epididymal granulomas (3/10) in male rats after 12 weeks. Significantly fewer litters were born to unexposed females mated to males in the 475 ppm dose group. Litter size, sex ratio, pup viability, pup survival and pup growth were not affected by methyl chloride in the 475 and 150 ppm dose groups. A trend towards decreased fertility was also found in the 475 ppm dose group in the F1 generation. A LOAEL = 475 ppm and NOAEL = 150 ppm were identified from this 1985 two-generation reproduction study. The testes and epididymis have been identified in animal repeat dose studies; however, species and sex differences in severity of methyl chloride toxicity were reported by several authors. In conclusion, testicular lesions and epididymal granulomas followed by reduced sperm counts and sperm quality lead to reduced fertility as well as complete infertility in rats. There are no human data available for review. Therefore, based on the data, the substance was categorized as Category 1B for reproductive toxicity.

TOXICOKINETICS: Elimination of chloromethane from the blood follows second-order kinetics and is rapid once inhalation exposure ceases with a half-life of 15 minutes in the rat, 50 minutes in the dog and in humans that are rapid metabolizers, and 90 minutes in humans that are slow metabolizers.

METABOLISM: Methyl chloride is metabolized by conjugation with glutathione to yield S-methylglutathione, S-methylcysteine, and other sulfur-containing compounds that are excreted in the urine or further metabolized to methanethiol. Cytochrome P450-dependent metabolism of methanethiol may yield formaldehyde and formic acid, whose carbon atoms are then available to the one-carbon pool for incorporation into macromolecules or for formation of CO₂. Alternatively, formaldehyde may be directly produced from chloromethane via a P450 oxidative dechlorination.

BIOLOGICAL DISTRIBUTION: Methyl chloride is rapidly absorbed from the lungs and rapidly reaches equilibrium with levels in blood and expired air approximately proportional to the exposure concentrations. At high concentrations, kinetic processes such as metabolism or excretion may become saturated limiting the rate of uptake. Animals studies show that methyl chloride is absorbed from the lungs and extensively distributed throughout the body.

ENDOCRINE DISRUPTOR: The effects of methyl chloride on sperm quality and fertility are due to a direct toxicity on the testes and not mediated by adverse changes in hormone concentrations. Thus, methyl chloride is not an endocrine disruptor.

NEUROTOXICITY: The central nervous system is identified as one of the target organs of chloromethane. Clinical signs such as tremors and paralysis, neurofunctional impairment and histopathological findings in the brain were detected in subacute, sub-chronic and chronic studies.

IMMUNOTOXICITY: Not available.

Hazard Not Otherwise Classified (HNOC)-Health

- Thermal Hazard: Contact with liquid or rapidly expanding gas may cause frostbite to contacted tissue (eyes, skin, etc.)
- Methyl Chloride is a neurotoxin. Subacute, sub-chronic and chronic exposures to methyl chloride may cause functional changes in the central nervous system
- May displace oxygen and cause rapid suffocation

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SECTION 12. ECOLOGICAL INFORMATION**ECOTOXICITY (EC, IC, and LC):**

| Component: | Freshwater Fish: | Invertebrate Toxicity: | Algae Toxicity: | Other Toxicity: |
|---|--|------------------------|-------------------|-------------------|
| Methyl Chloride 74-87-3 (99.9-100 %) | *LC50 Lepomis macrochirus: 550 mg/L 96h static | ----- | No data available | No data available |

Aquatic Toxicity:

Methyl chloride is not classified as either an acute or chronic aquatic toxin per GHS and its water solubility = 5320 mg/L)

Fish Toxicity:

LC50 Bluegill sunfish: 550 mg/L (96 hour)
LC50 Inland silversides: 270 mg/L (96 hour)

Algae Toxicity:

LC50 Green algae: 1450 mg/L

FATE AND TRANSPORT:

PERSISTENCE: AIR: Half-life is estimated to be 310 days. SOIL: This material does not tend to adsorb to soil. It may leach into groundwater where it can slowly biodegrade under anaerobic conditions. It can slowly hydrolyze to form hydrochloric acid. WATER: This material will rapidly volatilize from water.

BIODEGRADATION: Field and lab results demonstrate slow biodegradation under anaerobic conditions, but not under aerobic conditions. Theoretical BOD was reached in 4 weeks, indicating that biodegradation is not an important environmental fate process in soil or water. However, volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 2.1 hours and 2.8 days, respectively.

BIOACCUMULATIVE POTENTIAL: An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. The hydrolysis half-life is 0.93 years at pH 7 and 25 °C.

MOBILITY IN SOIL: Based on a classification scheme, an estimated Koc value of 13, determined from a structure estimation method, indicates that methyl chloride is expected to have very high mobility in soil. Volatilization of methyl chloride from moist soil surfaces is expected to be an important fate process given a Henry's Law constant of 8.82×10^{-3} atm-cu m/mole. Methyl chloride is expected to volatilize from dry soil surfaces based upon a vapor pressure of 4300 mm Hg at 25 °C.

ADDITIONAL ECOLOGICAL INFORMATION: This substance is not listed in Annexes to the Montreal Protocol; however, it is reported to EU according to Article 27; see Annex II, Part B, footnote 1 as an ozone depleting substance (ODS). The principal sink for methyl chloride in the troposphere is chemical reaction with hydroxyl radicals, and the atmospheric lifetime is estimated to be 1–3 years. A certain amount of methyl chloride reaches the stratosphere; there, photodissociation generates chlorine radicals, which contribute to ozone depletion. Estimates of the amount of methyl chloride reaching the stratosphere, and thus depleting ozone, vary widely. As estimated from figures presented

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by the World Meteorological Organization (WMO), methyl chloride contributes approximately 15% of the total equivalent effective stratospheric chlorine. The stratospheric ozone depletion potential (ODP) of methyl chloride has been determined to be 0.02 relative to the reference compound CFC-11, which has an ODP of 1. Methyl chloride is not thought to contribute significantly to either global warming or photochemical air pollution.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:

PRODUCT: Use or reuse if possible. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. **WASTEWATER** from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

Contaminated Material:

Contaminated packaging must be disposed of as unused product by a licensed / permitted waste disposal service.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT**U.S. DOT 49 CFR 172.101:**

UN NUMBER: UN1063
PROPER SHIPPING NAME: Methyl chloride
HAZARD CLASS/ DIVISION: 2.1
LABELING REQUIREMENTS: 2.1
RQ (Lbs.): RQ 100 Lbs. (Methyl chloride)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1063
SHIPPING NAME: Methyl chloride
CLASS OR DIVISION: 2.1

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LABELING REQUIREMENTS: 2.1**MARITIME TRANSPORT (IMO / IMDG)**

UN NUMBER: UN1063
 PROPER SHIPPING NAME: Methyl Chloride
 HAZARD CLASS / DIVISION: 2.1
 LABELING REQUIREMENTS: 2.1

AIR TRANSPORT (ICAO / IATA)

Special Instructions CAO: IATA Certificate for shipping personnel is required

SECTION 15. REGULATORY INFORMATION**U.S. REGULATIONS****OSHA REGULATORY STATUS:**

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

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

| Component | U.S. DOT Hazardous Substances/ RQs | CERCLA Hazardous Substances / RQs | CERCLA Section 302 EHS EPCRA RQs | Section 302 Threshold Planning Quantity (TPQ) |
|---------------------------------------|------------------------------------|-----------------------------------|----------------------------------|---|
| Methyl Chloride 74-87-3 (99.9-100) | 100 lbs(RQ) | 100 lbs.(final RQ) | Not listed | Not Listed |

SARA EHS Chemical (40 CFR 355.30)

Not regulated.

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Acute Health Hazard, Chronic Health Hazard, Fire Hazard, Sudden Release of Pressure

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):

Physical Hazard - Flammable (gases, aerosols, liquids, or solids)
 Physical Hazard - Gas Under Pressure
 Health Hazard - Acute Toxin (any route of exposure)
 Health Hazard - Reproductive Toxin
 Health Hazard - Specific Target Organ Toxicity (STOT) Single Exposure (SE)
 Health Hazard - Specific Target Organ Toxicity (STOT) Repeat Exposure (RE)
 Health Hazard - Germ Cell Mutagenicity
 Health Hazard - Simple Asphyxiant

EPCRA SECTION 313 (40 CFR 372.65):

The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

| Component | SARA 313 - Emission Reporting | SARA 313 PBT |
|-----------|-------------------------------|--------------|
|-----------|-------------------------------|--------------|

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| | | |
|---------------------------------------|---------------------------------|------------|
| Methyl Chloride 74-87-3 (99.9-100) | 1.0% (de minimis concentration) | Not Listed |
|---------------------------------------|---------------------------------|------------|

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):

This product is regulated under the U.S. Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) as follows:

| Component | DHS - Security Issues | DHS-Sabotage Screening Threshold Qty. | DHS-Sabotage Min. Conc. | DHS-Theft Screening Threshold Qty. | DHS-Theft Min. Conc. | DHS-Release Screening Threshold Qty. | DHS-Release Min. Conc. | CWC Toxic Chemicals: |
|---------------------------------------|-----------------------|---------------------------------------|-------------------------|------------------------------------|----------------------|--------------------------------------|----------------------------|----------------------|
| Methyl Chloride 74-87-3 (99.9-100) | Release - Flammable | Not Listed | Not Listed | Not Listed | Not Listed | 10000 lbs. STQ | 1.0% Minimum Concentration | Not Listed |

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

The PSM standard may apply to processes which involve a flammable liquid or gas in a quantity of 10,000 pounds (4535.9 kg) or more.

| Component | EPA RMP Toxic or Flammable TPQ | PSM - Highly Hazardous Substances, Toxics and Reactives | Flash Point |
|---------------------------------------|---------------------------------------|---|-------------|
| Methyl Chloride 74-87-3 (99.9-100) | Toxic (10000 lbs. threshold quantity) | 15000 lb TQ | -10°C |

EPA'S CLEAN WATER AND CLEAN AIR ACTS:

Regulated as noted in table below.

| Component | Clean Water Act - Priority Pollutants | CAA - ODS CLASS 1 AND CLASS 2 | CAA - Volatile Organic Compounds (VOCs) in SOCM1 | CAA - HON Rule - Organic HAPs | CAA - Hazard Air Pollutants | CAA - Urban HAPs List (Integrated Urban Strategy) | SNAP - Substitutes for ODS | EPA RMP Toxic or Flammable TPQ |
|---|---------------------------------------|-------------------------------|--|--|-----------------------------|---|----------------------------|---------------------------------------|
| Methyl Chloride 74-87-3 (99.9-100 %) | Present | Not Listed | Present | Present (listed under Methyl chloride) | Present | Not Listed | Not Listed | Toxic (10000 lbs. threshold quantity) |

NATIONAL INVENTORY STATUS**U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):**

| Component | TSCA Inventory | TSCA ACTIVE LIST | TSCA 12(b) | TSCA/Section 4 | TSCA/Section 5 | TSCA/Section 6 | TSCA/Section 8 |
|---|----------------|------------------|------------|-----------------|----------------|----------------|----------------|
| Methyl Chloride 74-87-3 (99.9-100 %) | Listed | ACTIVE | Not Listed | 40 CFR 799.5055 | Not Listed | Not listed | Listed |

CANADIAN CHEMICAL INVENTORY: All components of this product are listed on either the DSL or the NDSL.

| Component | DSL | NDSL |
|---------------------------------------|--------|------------|
| Methyl Chloride 74-87-3 (99.9-100) | Listed | Not Listed |

STATE REGULATIONS**California Proposition 65:**

This product contains a chemical known to the State of California to cause cancer, and/or birth defects, and/or other reproductive harm as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact OxyChem Technical Services.

| Component | California | California | California | Massachusetts Right | Rhode Island Right |
|-----------|------------|------------|------------|---------------------|--------------------|
| | | | | | |

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| | Proposition 65 Cancer WARNING: | Proposition 65 CRT List - Male reproductive toxin: | Proposition 65 CRT List - Female reproductive toxin: | to Know Hazardous Substance List | to Know Hazardous Substance List |
|---|-----------------------------------|--|--|-------------------------------------|-------------------------------------|
| Methyl Chloride 74-87-3 (99.9-100 %) | developmental toxicity | Not Listed | Not Listed | Listed | Listed |

| Component | New Jersey Right to Know Hazardous Substance List | New Jersey Special Health Hazards Substance List | New Jersey - Environmental Hazardous Substance List | Pennsylvania Right to Know Hazardous Substance List | Pennsylvania Right to Know Special Hazardous Substances | Pennsylvania Right to Know Special Hazardous Substances | Pennsylvania Right to Know Environmental Hazard List |
|-----------------|--|---|--|--|---|---|---|
| Methyl Chloride | 1235 | Listed - flammable - fourth degree | Listed | Listed | Not Listed | Not Listed | Present |

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

| Component | Canada - CEPA - Schedule I - List of Toxic Substances | Canada - NPRI | Canada - CEPA - 2010 Greenhouse Gases (GHG) Subject to Mandatory Reporting | CANADIAN CHEMICAL INVENTORY: | NDSL: |
|---------------------------------------|---|--|--|------------------------------------|------------|
| Methyl Chloride 74-87-3 (99.9-100) | Present (065) | Part 1, Group 1 Substance Part 4 Substance | Not Listed | Listed | Not Listed |

SECTION 16. OTHER INFORMATION

Prepared by: Occidental Chemical Corporation - HES&S Product Stewardship Department

Rev. Date: 07-Jun-2021

Reason for Revision:

- Change of company physical address: SEE SECTION 1
- Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
- Added restrictions on use: See SECTION 1
- Modified the Emergency Overview information: SEE SECTION 2
- Modified GHS Hazard and Precautionary Statements: SEE SECTION 2
- Added Hazards Not Otherwise Classified (HNOC): SEE SECTION 2
- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Exposure Level has changed. SEE SECTION 8
- Added Canadian exposure levels: SEE SECTION 8
- Added an explanation statement for "Ceiling Value" exposure levels: SEE SECTION 8
- Emphasis placed on use of enclosed processing systems: SEE SECTION 8
- Requirements for emergency eyewash and shower added: SEE SECTION 8

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- Added Hygiene Measures SEE SECTION 8
- PPE recommendations have been modified: SEE SECTION 8
- Updated Physical and Chemical Properties. SEE SECTION 9
- Stability and Reactivity recommendations: SEE SECTION 10
- GHS Classification Changes in SECTION 11
- SDS format change / enhancement to Section 11: Toxicological Information
- Ecological Information has been modified: SEE SECTION 12
- Updated Disposal Considerations. SEE SECTION 13
- Added air transport certificate requirements for shipping personnel: SEE SECTION 14
- Revised SARA Hazard Categories 311/312 HAZARD CATEGORIES (40 CFR 370.21): SEE SECTION 15
- Updated Canadian Regulatory information: SEE SECTION 15
- Added LOLI tables such as EPA'S Clean Water / Air Act, TSCA status, DHS, PSM, EPCRA, CERCLA, Federal Canadian: SEE SECTION 15
- Modified SARA Hazard Categories Aligned with GHS (2018): SEE SECTION 15

IMPORTANT:

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet