# SAFETY DATA SHEET

M47038 - ANSI - EN


# METHYL CHLORIDE, TECHNICAL GRADE

**SDS No.:** M47038 **SDS Revision Date:** 19-Dec-2014

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| **Company Identification:** | Occidental Chemical Corporation<br>5005 LBJ Freeway<br>P.O. Box 809050<br>Dallas, TX 75380-9050<br>1-800-752-5151 |
| **24 Hour Emergency Telephone Number:** | 1-800-733-3665 or 1-972-404-3228 (USA); 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 |
| **Uses Advised Against:** | None identified. |

## 2. HAZARDS IDENTIFICATION

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

# METHYL CHLORIDE, TECHNICAL GRADE

**SDS No.:** M47038 **SDS Revision Date:** 19-Dec-2014

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## EMERGENCY OVERVIEW:

**Color:** Colorless
**Physical state** Compressed, liquefied gas
**Odor:** , Ether-like

**Signal Word:** **DANGER**

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

**PHYSICAL HAZARDS:** Extremely flammable gas. May cause flash fire. Flash back hazard.

**PRECAUTIONARY STATEMENTS:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Keep away from heat, sparks, flame, and all sources of ignition. Do not breathe gas, fumes, vapor, mist, or spray. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use only equipment and hoses approved for this material. Do not enter confined spaces unless adequately ventilated. 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).

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## GHS CLASSIFICATION:

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|---|---|
| GHS: PHYSICAL HAZARDS: | Flammable Gas - Cat. 1 Extremely Flammable |
| GHS: CONTACT HAZARD - SKIN: | Not classified |
| GHS: CONTACT HAZARD - EYE: | Not classified |
| GHS: ACUTE TOXICITY - INHALATION: | Category 4 - Harmful if inhaled |
| GHS: ACUTE TOXICITY - ORAL: | Category 4 - Harmful if swallowed |
| GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE): | Category 1 - Causes damage to: Central Nervous System, Cardiovascular System |
| GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE): | Category 2 - May cause damage to: Liver, Kidneys |
| GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE): | Category 3 - May cause drowsiness or dizziness |
| GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE): | Category 1 - Causes damage to Liver, Kidneys, Central Nervous System through prolonged or repeated exposure |
| GHS: CARCINOGENICITY: | Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA. |

| | |
|---|---|
| GHS: GERM CELL MUTAGENICITY: | Category 1B - May cause genetic defects |
| GHS: REPRODUCTION TOXIN: | Category 1B - May damage fertility or the unborn child |

**GHS SYMBOL:**
Flame, Health hazard, Exclamation mark

**GHS SIGNAL WORD:** **DANGER**

**GHS HAZARD STATEMENTS:**

**GHS - Physical Hazard Statement(s)**
Extremely flammable gas

**GHS - Health Hazard Statement(s)**
May cause drowsiness or dizziness
Harmful if swallowed
Harmful if inhaled
Causes damage to Central Nervous System and Cardiovascular System
Causes damage to Liver, Kidney, and Central Nervous System through prolonged or repeated exposure
May damage fertility or the unborn child
May cause genetic defects

**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
Use only outdoors or in a well-ventilated area
Do not breathe gas, fumes, vapor, mist, or spray
Use personal protective equipment as required
Wash thoroughly after handling
Do not eat, drink or smoke when using this product

**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 INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor/physician
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Get medical advice/attention if you feel unwell
IF exposed or concerned: Get medical advice/attention
Specific treatment (see Section 4 of the safety data sheet and/or the First Aid information on the product label)

**GHS - Precautionary Statement(s) - Storage**
Store in a well-ventilated place. Keep container tightly closed
Store locked up

**GHS - Precautionary Statement(s) - Disposal**
Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

**Hazards Not Otherwise Classified (HNOC)**
Contact with liquid or rapidly expanding gas may cause frostbite to contacted tissue (eyes, skin, etc.)

**See Section 11: TOXICOLOGICAL INFORMATION**

# 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms:** Chloromethane, Monochloromethane

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

# 4. FIRST AID MEASURES

**INHALATION:** If inhaled and adverse effects occur, remove victim to fresh air and keep at rest in a position 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, rinse mouth with water (only if the person is conscious). If you feel unwell, contact a poison center or doctor/physician.

**Most Important Symptoms/Effects (Acute and Delayed)** :.

**Acute Symptoms/Effects:** Listed below.
**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. This material may be absorbed across the skin causing symptoms similar to inhalation exposures.
**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.

**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.

**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. Refer to Section 8 for specific personal protective equipment 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 and rigidity, and sleep distrubances. 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.

## 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.

**Extinguishing Media:** Use dry chemical and carbon dioxide.

**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<br>74-87-3 | 2000 ppm IDLH |

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

**Sensitivity to Mechanical Impact:** Not sensitive.

**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 (2008)].

**Lower Flammability Level (air):** 8.1 %

**Upper Flammability Level (air):** 17.4 %

**Flash point:** -49.9 °F (-45.5 °C) - OC

**Method:** OC - Open Cup

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

**GHS: PHYSICAL HAZARDS:**
- Flammable Gas - Cat. 1 Extremely Flammable

# 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. Most 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.

**Methods and Materials for Containment and Cleaning Up:**
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). 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, confined areas. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

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

# 7. HANDLING AND STORAGE

**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.

**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).

**Incompatibilities/ Materials to Avoid:**
Oxidizing Agents (such as Perchlorates, Peroxides, Permanganates, Chlorates, Nitrates, Chlorine, Bromine), Amines, Amides, Magnesium, Sodium, Zinc, Potassium, Aluminum, Alkali metals

**GHS: PHYSICAL HAZARDS:**
- Flammable Gas - Cat. 1 Extremely Flammable

# 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 PELCeiling |
|---|---|---|---|
| Methyl Chloride 74-87-3 | 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*

**NON-REGULATORY EXPOSURE LIMIT(S):** Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

| Component | CAS Number | ACGIH TWA | ACGIH STEL | ACGIH Ceiling | OSHA TWA (Vacated) | OSHA STEL (Vacated) | OSHA Ceiling (Vacated) |
|---|---|---|---|---|---|---|---|
| Methyl Chloride | 74-87-3 | 50 ppm | 100 ppm | ----- | 50 ppm<br>105 mg/m$^3$ | 100 ppm<br>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 explosion proof equipment and lighting in classified/controlled areas. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye Protection:** Wear safety glasses with side-shields. Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash 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:** Viton®, Saranex™, Tychem®, Teflon®, 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

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

**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 auxilliary 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.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|
| **Physical state** | Compressed, liquefied gas |
| **Color:** | Colorless |
| **Odor:** | , Ether-like |
| **Odor Threshold [ppm]:** | 10 ppm. (Methyl chloride odors are reported to be not noticeable at potentially dangerous concentrations.). |
| **Molecular Weight:** | 50.49 |
| **Molecular Formula:** | CH3Cl |
| **Decomposition Temperature:** | No data available |
| **Boiling Point/Range:** | -11.6 °F (-24.2 °C) |
| **Freezing Point/Range:** | -144 °F (-97.8 °C). |
| **Melting Point/Range:** | Not applicable to liquids |
| **Vapor Pressure:** | 56.3 psig @ 20 °C (3600 mmHg @ 20 °C) |
| **Vapor Density (air=1):** | 1.74 @ 0°C |
| **Relative Density/Specific Gravity (water=1):** | 0.915 @ 20°C |
| **Water Solubility:** | 0.48 g/100g @ 25 °C |
| **pH:** | Not applicable |
| **Volatility:** | 100% |
| **Evaporation Rate (ether=1):** | Not applicable |
| **Partition Coefficient (n-octanol/water):** | Log Kow = 0.91 |
| **Flash point:** | -49.9 °F (-45.5 °C) - OC |
| **Method:** | OC - Open Cup |
| **Flammability (solid, gas):** | Highly flammable |
| **Lower Flammability Level (air):** | 8.1 % |
| **Upper Flammability Level (air):** | 17.4 % |
| **Auto-ignition Temperature:** | 1170 °F (632.2 °C) |
| **Viscosity:** | No data available |

# 10. STABILITY AND REACTIVITY

**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.

**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.

**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.

**Incompatibilities/ Materials to Avoid:**
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.

# 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:**

**PRODUCT TOXICITY DATA:** Methyl Chloride, Technical Grade

| LD50 Oral: | LD50 Dermal: | LC50 Inhalation: |
|---|---|---|
| 1800 mg/kg (Rat) | No data available | 4900 mg/m$^3$ (4 hr - Rat) / (approximately 2379 ppm) |

**COMPONENT TOXICITY DATA:**
**Note:** The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

| Component | LD50 Oral: | LD50 Dermal: | LC50 Inhalation: |
|---|---|---|---|
| Methyl Chloride 74-87-3 | 1800 mg/kg (Rat) | ----- | 5300 mg/m$^3$ (4 hr-Rat) |

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**POTENTIAL HEALTH EFFECTS:**

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

**Skin contact:** Direct skin contact with liquid or rapidly expanding gas may cause frostbite. Skin contact may cause slight irritation, redness. May be absorbed through the skin.

**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 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:**
Listed below.

**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. This material may be absorbed across the skin causing symptoms similar to inhalation exposures.
**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.

**TOXICITY:**
While the principle exposure route for methyl chloride is inhalation, it can be absorbed through the skin. 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.

**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.

**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.

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**GHS HEALTH HAZARDS:**

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

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

**Skin Absorbent / Dermal Route?** Yes.

**GHS: CONTACT HAZARD - SKIN:** Not classified

**GHS: CONTACT HAZARD - EYE:** Not classified

**GHS: CARCINOGENICITY:**
Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.

**SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):**
Category 1 - Central Nervous System (CNS), Cardiovascular System
Category 2 - Liver, Kidneys
Category 3 - Narcotic Effects

**SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):**
Category 1 - Liver, Kidneys, Central Nervous System (CNS)

**MUTAGENIC DATA:**
Category 1B - May cause genetic defects. This material is a mammalian somatic cell mutagen.

**REPRODUCTIVE TOXICITY:**
Category 1B - May damage fertility or the unborn child. Methyl chloride causes testicular toxicity in rats. In one study of mice, fetal heart malformations were observed; however, this result could not be duplicated by other researchers. There are no human data.

# 12. ECOLOGICAL INFORMATION

**ECOTOXICITY DATA:**

**Fish Toxicity:**
LC50 Bluegill sunfish: 550 ppm (96 hr.)
LC50 Inland silversides: 270 ppm (96 hr.)

**FATE AND TRANSPORT:**

**BIODEGRADATION:** Field and lab results demonstrate slow biodegradation under anaerobic conditions, but not under aerobic conditions.

**PERSISTENCE:** AIR: Half-life is estimated to be 310 days. SOIL: This material does not tend to adborb 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. Half-lives in a model river and model lake are 46 min and 3 days, respectively.

**BIOCONCENTRATION:** An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low.

## 13. DISPOSAL CONSIDERATIONS

**Waste from material:**
Use or reuse if possible. Dispose in accordance with all applicable regulations. May be subject to disposal regulations.

**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.

## 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 |
| **LABELING REQUIREMENTS:** | 2.1 |

**MARITIME TRANSPORT (IMO / IMDG)** Regulated

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

# 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 | CERCLA Reportable Quantities: |
|---|---|
| Methyl Chloride | 100 lb (final RQ) |

**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

**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 | Status: |
|---|---|
| Methyl Chloride | 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.

**NATIONAL INVENTORY STATUS**

**U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):** All components are listed or exempt.

**TSCA 12(b):** This product is not subject to export notification.

**Canadian Chemical Inventory:** All components of this product are listed on either the DSL or the NDSL.

**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 Customer Relations.

| Component | California Proposition 65 Cancer WARNING: | California Proposition 65 CRT List - Male reproductive toxin: | California Proposition 65 CRT List - Female reproductive toxin: | Massachusetts Right to Know Hazardous Substance List | New Jersey Right to Know Hazardous Substance List | New Jersey Special Health Hazards Substance List |
|---|---|---|---|---|---|---|
| **Methyl Chloride 74-87-3** | developmental toxicity | Not Listed | Not Listed | Listed | Listed | Listed - flammable - fourth degree |

| Component | New Jersey - Environmental Hazardous Substance List | Pennsylvania Right to Know Hazardous Substance List | Pennsylvania Right to Know Special Hazardous Substances | Pennsylvania Right to Know Environmental Hazard List | Rhode Island Right to Know Hazardous Substance List |
|---|---|---|---|---|---|
| **Methyl Chloride 74-87-3** | Listed | Listed | Not Listed | Listed | Listed |

**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.

**WHMIS - Classifications of Substances:**

- A - Compressed Gas
- B1 - Flammable Gas
- D2A - Poisonous and Infectious Material; Materials causing other toxic effects - Very toxic material
- D2B - Poisonous and Infectious Material; Materials causing other toxic effects - Toxic material

## 16. OTHER INFORMATION

**Prepared by:** OxyChem Corporate HESS - Product Stewardship

**Rev. Date:** 19-Dec-2014

**HMIS: (SCALE 0-4)** (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

**Health Rating:** 1* **Flammability Rating:** 4 **Reactivity Rating:** 0

**NFPA 704 - Hazard Identification Ratings (SCALE 0-4)**

**Health Rating:** 1 **Flammability:** 4 **Reactivity Rating:** 0

# METHYL CHLORIDE, TECHNICAL GRADE



**Reason for Revision:**
• Three year review
• Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200}
• Updated the (M)SDS header
• Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
• Product Identifier has been added or updated: SEE SECTION 1
• Updated Uses Advised Against information: SEE SECTION 1
• Added OSHA Status: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Added GHS Information: SEE SECTION 2
• Added synonym(s): SEE SECTION 3
• Updated First Aid Measures: SEE SECTION 4
• Revised Accidental Release Measures: SEE SECTION 6
• Revised Handling and Storage Recommendations: SEE SECTION 7
• PPE recommendations have been modified: SEE SECTION 8
• Updated Physical and Chemical Properties. SEE SECTION 9
• Stability and Reactivity recommendations: SEE SECTION 10
• Toxicological Information has been revised: SEE SECTION 11
• Ecological Information has been modified: SEE SECTION 12
• Updated Disposal Considerations. SEE SECTION 13
• Updated Transportation Information: SEE SECTION 14
• Regulatory Information Changes: SEE SECTION 15
• Revised Preparer Information: SEE SECTION 16
• Added SDS Revision Date: SEE SECTION 16
• Added/Updated Revision Log: SEE SECTION 16
• Added "End of Safety Data Sheet" phrase

**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**