SAFETY DATA SHEET

Updated on 26/09/2024

1. Material Identification

Product Name : Methane, chloromethoxy-
Catalog Number : io-2622
CAS Number : 107-30-2
Identified uses : Laboratory chemicals, manufacture of chemical compounds
Company : Ionz

>> R&D Use only

2. Hazards Identification

GHS Classification:

Flammable liquid (category 2)
Acute toxicity, oral (Category 3)
Acute toxicity, dermal (Category 3)
Acute toxicity, inhalation (Category 3)
Specific target organ toxicity, single exposure (Category 1)

Pictogram(s)

GHS Hazard Statements

>> H225 (100%): Highly Flammable liquid and vapor [Danger Flammable liquids]

>> H302+H312+H332 (84.4%): Harmful if swallowed, in contact with skin or if inhaled [Warning Acute toxicity, oral; acute toxicity, dermal; acute toxicity, inhalation]

>> H302 (100%): Harmful if swallowed [Warning Acute toxicity, oral]

>> H312 (100%): Harmful in contact with skin [Warning Acute toxicity, dermal]

>> H319 (84.4%): Causes serious eye irritation [Warning Serious eye damage/eye irritation]

>> H332 (100%): Harmful if inhaled [Warning Acute toxicity, inhalation]

>> H350 (100%): May cause cancer [Danger Carcinogenicity]

Precautionary Statement Codes

>> P203, P210, P233, P240, P241, P242, P243, P261, P264, P264+P265, P270, P271, P280, P301+P317, P302+P352, P303+P361+P353, P304+P340, P305+P351+P338, P317, P318, P321, P330, P337+P317, P362+P364, P370+P378, P403+P235, P405, and P501

NFPA 704 Diamond

NFPA Health Rating

>> 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA Fire Rating

>> 3 - Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions.

NFPA Instability Rating

>> 2 - Materials that readily undergo violent chemical changes at elevated temperatures and pressures.

Highly Hazardous Substance:

This section provides information on this chemical as a highly hazardous substance (due to potential safety and hazards issues from its high toxicity and/or reactivity). The information in this section is from two sources: (1) Annex XVII to REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) from the European Chemicals Agency (ECHA), (2) ECHA's Candidate List of Substances of Very High Concern (SVHC) for Authorisation and (3) the List of Highly Hazardous Chemicals, Toxics and Reactives (29 CFR 1910.119 Appendix A).

OSHA Highly Hazardous Chemicals, Toxics and Reactives

>> Chemical: Chloromethyl Methyl Ether

>> Threshold: 500 [lb]

>> Note: Chloromethyl Methyl Ether in quantities at or above above 500lb presents a potential for a catastrophic event as a toxic or reactive highly hazardous chemical.

Health Hazards:

>> The principal effect is irritation. The liquid causes severe irritation of eyes and skin; and vapor exposure of 100 ppm is severely irritating to eyes and nose. This level is dangerous to life in 4 hours. Pulmonary edema or pneumonia may cause death. There was increased death rate from respiratory cancer among exposed victims and it is a regulated carcinogen. (EPA, 1998)

ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> TOXIC; may be fatal if inhaled, ingested or absorbed through skin.

>> Inhalation or contact with some of these materials will irritate or burn skin and eyes.

>> Methyl chloroacetate (UN2295) is an eye irritant/lachrymator (causes flow of tears).

>> Fire will produce irritating, corrosive and/or toxic gases.

>> Vapors may cause dizziness or asphyxiation, especially when in closed or confined areas.

>> Runoff from fire control or dilution water may cause environmental contamination.

>> Flammable/combustible material; may be ignited by heat, sparks, or flames. Vapors may travel to a source of ignition and flash back. Container may explode in heat of fire. In addition to the risk of explosion, when air mixtures of ether vapors are heated or exposed to flame or sparks, they tend to form peroxides. Ethers containing peroxides can detonate when heated. Unburned material may form powerful tear gas. When wet, also forms irritating formaldehyde gas. Evolves formaldehyde and hydrogen chloride. When heated to decomposition, it emits toxic fumes of chlorides. Avoid decomposing heat Hazardous polymerization may not occur. (EPA, 1998)

ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.

>> CAUTION: Methanol (UN1230) will burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.)

>> Vapors may form explosive mixtures with air.

>> Vapors may travel to source of ignition and flash back.

>> Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks, etc.).

>> Vapor explosion and poison hazard indoors, outdoors or in sewers.

>> Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.

>> Runoff to sewer may create fire or explosion hazard.

>> Containers may explode when heated.

>> Many liquids will float on water.

>> Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire. Heating will cause rise in pressure with risk of bursting. Vapour/air mixtures are explosive.

Hazards Identification

ERG Hazard Classes

>> Toxic/poison by inhalation (TIH/PIH)

3. Composition/Information On Ingredients

Chemical name : Methane, chloromethoxy-
CAS Number : 107-30-2
Molecular Formula : C2H5ClO
Molecular Weight : 80.5100 g/mol

4. First Aid Measures

First Aid:

>> Signs and Symptoms of Chloromethyl Methyl Ether Exposure: Acute exposure to chloromethyl methyl ether may produce severe irritation and burning of the skin, eyes, and mucous membranes. Sore throat, fever, chills, dypsnea (difficulty breathing), chronic bronchitis, and pulmonary edema with productive cough may be noted.

>> Emergency Life-Support Procedures: Acute exposure to chloromethyl methyl ether may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.

>> Inhalation Exposure:

>> 1. Move victims to fresh air. Emergency personnel should avoid self-exposure to chloromethyl methyl ether.

>> 2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer 100% humidified oxygen or other respiratory support.

>> 3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

>> 4. Transport to a health care facility.

>> Dermal/Eye Exposure:

>> 1. Remove victims from exposure. Emergency personnel should avoid self-exposure to chloromethyl methyl ether.

>> 3. Remove and isolate contaminated clothing as soon as possible.

>> 4. If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.

>> 5. Wash exposed skin areas thoroughly with soap and water.

>> 6. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.

>> 7. Transport to a health care facility.

>> Ingestion Exposure:

>> 1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer 100% humidified oxygen or other respiratory support.

>> 2. DO NOT induce vomiting or attempt to neutralize!

>> 4. Activated charcoal may be administered if victims are conscious and alert. Use 15 to 30 g (1/2 to 1 oz) for children, 50 to 100 g (1-3/4 to 3-1/2 oz) for adults, with 125 to 250 mL (1/2 to 1 cup) of water.

>> 5. Promote excretion by administering a saline cathartic or sorbitol to conscious and alert victims. Children require 15 to 30 g (1/2 to 1 oz) of cathartic; 50 to 100 g (1-3/4 to 3-1/2 oz) is recommended for adults.

>> 6. Transport to a health care facility. (EPA, 1998)

ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> General First Aid:

>> Call 911 or emergency medical service.

>> Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and avoid contamination.

>> Move victim to fresh air if it can be done safely.

>> Administer oxygen if breathing is difficult.

>> If victim is not breathing:

>> DO NOT perform mouth-to-mouth resuscitation; the victim may have ingestedor inhaled the substance.

>> If equipped and pulse detected, wash face and mouth, then give artificial respiration using a proper respiratory medical device (bag-valve mask, pocket mask equipped with a one-way valve or other device).

>> If no pulse detected or no respiratory medical device available, provide continuouscompressions. Conduct a pulse check every two minutes or monitor for any signs of spontaneous respirations.

>> Remove and isolate contaminated clothing and shoes.

>> For minor skin contact, avoid spreading material on unaffected skin.

>> In case of contact with substance, remove immediately by flushing skin or eyes with running water for at least 20 minutes.

>> For severe burns, immediate medical attention is required.

>> Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

>> Keep victim calm and warm.

>> Keep victim under observation.

>> For further assistance, contact your local Poison Control Center.

>> Note: Basic Life Support (BLS) and Advanced Life Support (ALS) should be done by trained professionals.

>> Specific First Aid:

>> Wash skin with soap and water.

>> In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.

>> In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping paper and/or the "ERAP" section.

First Aid Measures

Inhalation First Aid

>> Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.

Skin First Aid

>> Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Eye First Aid

>> Rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.

Ingestion First Aid

>> Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

5. Fire Fighting Measures

>> FLASHBACK ALONG VAPOR TRAIL MAY OCCUR.

>> Move container from fire area. Dike fire control water for later disposal; do not scatter material. Cool containers that are exposed to flames with water. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Extinguish with dry chemicals, foam, or carbon dioxide. Water may be ineffective in extinguishing fire. (EPA, 1998)

>> Use dry powder. Water may be ineffective. In case of fire: keep drums, etc., cool by spraying with water.

6. Accidental Release Measures

Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

>> Excerpt from ERG Guide 131 [Flammable Liquids - Toxic]:

>> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

>> SPILL: See ERG Table 1 - Initial Isolation and Protective Action Distances on the UN/NA 1239 datasheet.

>> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Evacuation: ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> Immediate precautionary measure

>> Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

>> Spill

>> For non-highlighted materials: increase the immediate precautionary measure distance, in the downwind direction, as necessary.

>> Fire

>> If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Isolation

>> Small spill:

>> ISOLATE in all directions: 60 m (200 ft)

>> Large spill:

>> ISOLATE in all directions: 300 m (1000 ft)

Protection

>> Small spill:

>> PROTECT people from downwind during DAY time: 0.5 km (0.3 mi)

>> PROTECT people from downwind during NIGHT time: 1.5 km (1.0 mi)

>> Large spill:

>> PROTECT people from downwind during DAY time: 3.4 km (2.1 mi)

>> PROTECT people from downwind during NIGHT time: 5.7 km (3.6 mi)

Spillage Disposal:

Methods for containment and safety measures to protect workers dealing with a spillage of this chemical.

>> Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

Accidental Release Measures

Public Safety: ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

>> Keep unauthorized personnel away.

>> Stay upwind, uphill and/or upstream.

>> Ventilate closed spaces before entering, but only if properly trained and equipped.

Spill or Leak: ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.

>> All equipment used when handling the product must be grounded.

>> Do not touch or walk through spilled material.

>> Stop leak if you can do it without risk.

>> Prevent entry into waterways, sewers, basements or confined areas.

>> A vapor-suppressing foam may be used to reduce vapors.

>> Small Spill

>> Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

>> Use clean, non-sparking tools to collect absorbed material.

>> Large Spill

>> Dike far ahead of liquid spill for later disposal.

>> Water spray may reduce vapor, but may not prevent ignition in closed spaces.

7. Handling And Storage

Safe Storage:

>> Fireproof. Provision to contain effluent from fire extinguishing. Well closed. Separated from food and feedstuffs. Store in an area without drain or sewer access.

Storage Conditions:

>> Store at ambient temperature.

8. Exposure Control/ Personal Protection

>> Ca See Appendix A

PEL-TWA (8-Hour Time Weighted Average)

>> Ca

>> [1910.1006] See Appendix B

>> Exposure by all routes should be carefully controlled to levels as low as possible.

>> A2 (suspected human carcinogen).

MAK (Maximale Arbeitsplatz Konzentration)

>> carcinogen category: 1

Emergency Response: ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> CAUTION: The majority of these products have a very low flash point. Use of water spray when fighting fire may be inefficient.

>> CAUTION: Methanol (UN1230) will burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.)

>> Small Fire

>> Dry chemical, CO2, water spray or alcohol-resistant foam.

>> Large Fire

>> Water spray, fog or alcohol-resistant foam.

>> If it can be done safely, move undamaged containers away from the area around the fire.

>> Dike runoff from fire control for later disposal.

>> Avoid aiming straight or solid streams directly onto the product.

>> Fire Involving Tanks, Rail Tank Cars or Highway Tanks

>> Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles.

>> Cool containers with flooding quantities of water until well after fire is out.

>> Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

>> ALWAYS stay away from tanks in direct contact with flames.

>> For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

>> ERPG-1: Not appropriate - one hour exposure limit: 1 = mild transient health effects or objectionable odor [AIHA]

>> ERPG-2: 1 ppm - one hour exposure limit: 2 = impaired ability to take protective action [AIHA]

>> ERPG-3: 10 ppm - one hour exposure limit: 3 = life threatening health effects [AIHA]

Inhalation Risk:

>> A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20 °C.

Effects of Short Term Exposure:

>> The substance is corrosive to the eyes, skin and respiratory tract. Inhalation may cause lung oedema, but only after initial corrosive effects on eyes and/or airways have become manifest. Medical observation is indicated.

Effects of Long Term Exposure:

>> This substance is carcinogenic to humans. Repeated or prolonged inhalation may cause effects on the lungs.

Fire Prevention

>> NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding).

Exposure Prevention

>> AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

Inhalation Prevention

>> Use closed system and ventilation.

Skin Prevention

>> Protective gloves. Protective clothing.

Eye Prevention

>> Wear face shield or eye protection in combination with breathing protection.

Ingestion Prevention

>> Do not eat, drink, or smoke during work. Wash hands before eating.

Exposure Control and Personal Protection

Protective Clothing: ERG 2024, Guide 131 (Methyl chloromethyl ether)

>> Wear positive pressure self-contained breathing apparatus (SCBA).

>> Wear chemical protective clothing that is specifically recommended by the manufacturer when there is NO RISK OF FIRE.

>> Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

Exposure Summary

>> TIH (Toxic Inhalation Hazard) - Term used to describe gases and volatile liquids that are toxic when inhaled. Some are TIH materials themselves, e.g., chlorine, and some release TIH gases when spilled in water, e.g., chlorosilanes. [ERG 2016].

9. Physical And Chemical Properties

Molecular Weight:

>> 80.51

Exact Mass:

>> 80.0028925

Physical Description:

>> Methyl chloromethyl ether appears as a clear colorless liquid. Flash point -4 °F. Irritates the eyes and respiratory system. Very toxic by inhalation and may be toxic by ingestion or skin absorption. Vapors are heavier than air.

>> COLOURLESS LIQUID WITH CHARACTERISTIC ODOUR.

Color/Form:

>> COLORLESS LIQ

Odor:

>> Irritating odor

Boiling Point:

>> 138 °F at 760 mmHg (EPA, 1998)

>> 59 °C

Melting Point:

>> -154.3 °F (EPA, 1998)

>> -104 °C

Flash Point:

>> 32 °F (EPA, 1998)

>> -8 °C c.c.

Solubility:

>> Reacts with water (NIOSH, 2024)

>> Solubility in water: decomposes

Density:

>> 1.0605 at 68 °F (EPA, 1998) - Denser than water; will sink

>> Relative density (water = 1): 1.06

Vapor Density:

>> 0.5245 lb/cu ft at 70 °F

>> Relative vapor density (air = 1): 2.8

Vapor Pressure:

>> 192 mmHg at 70 °F (NIOSH, 2024)

>> Vapor pressure, kPa at 20 °C: 21.6

LogP:

>> 0.320

Stability/Shelf Life:

>> Stable

Decomposition:

>> DECOMP IN HOT ETHANOL

Corrosivity:

The ability of a chemical to damage or destroy other substances when it comes into contact.

>> Will react with surface moisture to evolve hydrogen chloride which is corrosive to metal.

Heat of Combustion:

>> APPROX -7,300 BTU/POUND

Heat of Vaporization:

>> LATENT HEAT OF VAPORIZATION: APPROX 154 BTU/POUND

Surface Tension:

>> LIQUID SURFACE TENSION: APPROX 30 DYNES/CM

Ionization Potential:

>> 10.25 eV

Refractive Index:

>> INDEX OF REFRACTION: 1.3974 @ 20 °C/D

10. Stability And Reactivity

>> Highly flammable. Denser than water and is decomposed by water to yield hydrochloric acid, a corrosive material. With water the ether reacts to evolve formaldehyde and hydrogen chloride. The reaction is slow at ambient conditions.

>> Highly Flammable

>> Peroxidizable Compound

Peroxide Forming Chemical:

Peroxide-forming chemicals (PFCs) are chemicals that can "auto-oxidize" with atmospheric oxygen under ambient conditions to form organic peroxides (contains an -O-O- bond). Peroxide formation can be initiated by exposure to air, self-polymerization, or solvent impurities. Once formed, organic peroxides are sensitive to thermal or mechanical shock and can be violently explosive in concentrated solutions or as solids.

Chemical

>> Chloromethyl methyl ether

Class (* = UMN Designation)

>> D: Other compounds that may form peroxides

Peroxide Concentration Over Time

>> 1 sample had 1 ppm peroxide; age >10 yrs

Reference(s)

>> Kelly

11. Toxicological Information

Toxicity Summary:

>> ... Based upon the lack of persistence of BCME /bis(chloromethyl) ether/ and CMME /chloromethyl methyl ether/ in the environment, average human exposure to these compounds is likely to be very low. ... General population exposure to BCME and CMME occurs where they are produced by the widespread burning of this synergist in mosquito coils. ...Quantitative information on the kinetics and metabolism ... in humans is not available. However, it is anticipated that although in vivo BCME and CMME would be rapidly hydrolyzed in tissues to formaldehyde and hydrogen chloride, and methanol, formaldehyde and hydrogen chloride, respectively, there should be alkylation activity. ... BCME and CMME are acutely toxic by inhalation or ingestion. ...During inhalation of BCME /in laboratory animal studies/, irritation of the eyes and respiratory tract were noted as well as necrotizing bronchitis. Skin application resulted in erythema and necrosis, and application to the eye resulted in corneal necrosis. Similar effects were noted after exposure to CMME. Increased mortality and tracheal hyperplasia were observed in rats and hamsters following multiple inhalation exposure to ... BCME ... Similar results were observed in rats repeatedly exposed by inhalation to ... CMME ... In general, positive results were obtained when ... tested for mutagenicity in vitro. ... BCME and CMME have been reported to increase unscheduled DNA synthesis in vitro ... Studies with CMME have shown an increased incidence of tracheal metaplasia and bronchial hyperplasia in a dose-dependent manner in rats. However, results of carcinogenicity bioassays are inconclusive in animal studies. ... Exposure of workers to BCME (CMME) was associated with increased risk of lung cancer. Workers exposed to commercial grade CMME were probably also exposed to BCME. The predominant tumors in exposed workers were small cell carcinomas, quite distinct from the chiefly squamous cell carcinomas usually found in smokers. The association between exposure to BCME (CMME) and lung cancer was strong ... The type of lung cancer, latency period and average age of appearance of lung tumors in workers exposed to BCME (CMME) has been remarkably consistent. For CMME, there is also evidence of a positive relationship between a qualitative measure of exposure and mortality due to lung cancer. ... Concentrations /of BCME and CMME/ ... in the course of occupational exposure increased the frequency of chromosomal aberrations in the peripheral lymphocytes of exposed workers. Information has not been reported regarding the neurological, immunological, developmental or reproductive effects of BCME or CMME in humans. ... No information on the toxicological effects of BCME and CMME on environmental organisms has been reported.

Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

>> CLASSIFICATION: A; human carcinogen. BASIS FOR CLASSIFICATION: The observation of an increased incidence of respiratory cancer in exposed workers and the observation of respiratory tumors in mice, rats, and hamsters exposed by inhalation forms the basis for this classification. HUMAN CARCINOGENICITY DATA: Sufficient.

Carcinogen Classification:

This section provides the International Agency for Research on Cancer (IARC) Carcinogenic Classification and related monograph links. In the IARC Carcinogenic classification, chemicals are categorized into four groups: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans), Group 2B (possibly carcinogenic to humans), and Group 3 (not classifiable as to its carcinogenicity to humans).

>> 1, carcinogenic to humans. (L135)

Exposure Routes:

>> Serious local effects by all routes of exposure.

>> inhalation, skin absorption, ingestion, skin and/or eye contact

Inhalation Exposure

>> Burning sensation. Cough. Sore throat. Dizziness. Headache. Nausea. Shortness of breath. Laboured breathing.

Skin Exposure

>> Redness. Pain. Skin burns. Blisters.

Eye Exposure

>> Redness. Pain. Blurred vision. Loss of vision. Severe burns.

Ingestion Exposure

>> Burns in mouth and throat. Abdominal cramps. Vomiting. Diarrhoea. Shock or collapse.

>> irritation eyes, skin, mucous membrane; pulmonary edema, pulmonary congestion, pneumonitis; skin burns, necrosis; cough, wheezing, pulmonary congestion; blood stained-sputum; weight loss; bronchial secretions; [potential occupational carcinogen]

Target Organs:

Organs that are affected by exposure to this chemical. Information in this section reflects human data unless otherwise noted.

>> Eyes, skin, respiratory system

Cancer Sites:

The site in which cancer develops due to exposure to this compound. Cancers are casually referred to based on their primary sites (e.g., skin, lung, breasts, prostate, colon and rectum).

>> [in animals: skin & lung cancer]

Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

>> Dermatotoxin - Skin burns.

>> Lacrimator (Lachrymator) - A substance that irritates the eyes and induces the flow of tears.

>> Toxic Pneumonitis - Inflammation of the lungs induced by inhalation of metal fumes or toxic gases and vapors.

>> IARC Carcinogen - Class 1: International Agency for Research on Cancer classifies chemicals as established human carcinogens.

>> NTP Carcinogen - Known to be a human carcinogen.

>> ACGIH Carcinogen - Suspected Human.

Toxicity Data:

>> LC50 (rat) = 55 ppm/7h

Interactions:

>> CHLOROMETHYL METHYL ETHER ELICITED WEAK TUMOR RESPONSE WITH CROTON RESIN AS PROMOTING AGENT.

Antidote and Emergency Treatment:

>> Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Provide a low-stimulus environment. Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye

contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool ... . Treat frostbite by rapid rewarming ... . /Ethers and related compounds/

Human Toxicity Excerpts:

>> PRINCIPAL EFFECT ... IRRITATION ... LIQ CAUSING SEVERE IRRITATION OF SKIN & EYES; VAPOR EXPOSURE OF 100 PPM IS SEVERELY IRRITATING TO EYES & NOSE. SUCH A LEVEL IS DANGEROUS TO LIFE IN 4 HR. PULMONARY EDEMA OR PNEUMONIA MAY CAUSE DEATH ... DAYS OR WK AFTER EXPOSURE.

Non-Human Toxicity Excerpts:

>> A GROUP OF 50 MALE STRAIN A/He MICE WAS EXPOSED TO AN ATMOSPHERE CONTAINING A CONCENTRATION OF 0.006 MG/L (6 MG/CU M) CMME IN EXPOSURE CHAMBERS FOR 6 HOURS PER DAY ON 5 DAYS PER WEEK DURING 21 WEEKS. A TOTAL OF 25/50 ANIMALS AT RISK HAD LUNG TUMOURS, WITH AN AVERAGE OF 1.5 TUMOURS PER ANIMAL. IN A CONTROL GROUP EXPOSED TO FILTERED ROOM AIR FOR 130 DAYS AND HELD FOR 28 WEEKS, 20/49 MICE AT RISK HAD LUNG TUMOURS, WITH AN AVERAGE OF 0.9 TUMOURS PER MOUSE.

Non-Human Toxicity Values:

>> LD50 Rat oral 0.5 g/kg

12. Ecological Information

Resident Soil (mg/kg)

>> 2.00e-02

Industrial Soil (mg/kg)

>> 8.90e-02

Resident Air (ug/m3)

>> 4.10e-03

Industrial Air (ug/m3)

>> 1.80e-02

Tapwater (ug/L)

>> 6.50e-03

MCL (ug/L)

>> 8.0E+01(G)

Risk-based SSL (mg/kg)

>> 1.4e-06

Oral Slope Factor (mg/kg-day)-1

>> 2.40e+00

Inhalation Unit Risk (ug/m3)-1

>> 6.90e-04

Volatile

>> Volatile

Mutagen

>> Mutagen

Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

Soil Saturation Concentration (mg/kg)

>> 9.32e+03

13. Disposal Considerations

Spillage Disposal

>> Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

Disposal Methods

>> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U046, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

>> Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced. Recommendable method: Incineration. Not recommendable method: Evaporation.

>> A potential candidate for rotary kiln incineration at a temperature range of 820 to 1,600 °C and residence times of seconds for liquids and gases, and hours for solids. A potential candidate for fluidized bed incineration at a temperature range of 450 to 980 °C and residence times of seconds for liquids and gases, and longer for solids. A potential candidate for liquid injection incineration at a temperature range of 650 to 1,600 °C and a residence time of 0.1 to 2 seconds.

>> PRECAUTIONS FOR "CARCINOGENS": There is no universal method of disposal that has been proved satisfactory for all carcinogenic compounds & specific methods of chem destruction ... published have not been tested on all kinds of carcinogen-containing waste. ... summary of avail methods & recommendations ... /given/ must be treated as guide only. /Chemical Carcinogens/

>> For more Disposal Methods (Complete) data for CHLOROMETHYL METHYL ETHER (9 total), please visit the HSDB record page.

14. Transport Information

DOT

Methane, chloromethoxy-
6.1
UN Pack Group: I
Reportable Quantity of 10 lb or 4

IATA

Methane, chloromethoxy-
6.1, 3
UN Pack Group: I

15. Regulatory Information

DHS Chemicals of Interest (COI):

This section provides the Department of Homeland Security (DHS) Chemicals of Interest (COI) and related information (Ref: 6 eCFR part 27 - https://www.ecfr.gov/current/title-6/chapter-I/part-27).

Chemicals of Interest(COI)

>> Chloromethyl methyl ether

Release: Minimum Concentration (%)

>> 1

Release: Screening Threshold Quantities (in pounds)

>> 5000

Security Issue: Release - Toxic

>> Toxic chemical that can be released at a facility.

Regulatory Information

The Australian Inventory of Industrial Chemicals

>> Chemical: Methane, chloromethoxy-

New Zealand EPA Inventory of Chemical Status

>> Chloromethyl methyl ether: HSNO Approval: HSR002938 Approved with controls

16. Other Information

Toxic Combustion Products:

Toxic products (e.g., gases and vapors) produced from the combustion of this chemical.

>> REACTS TO EVOLVE FORMALDEHYDE & HYDROGEN CHLORIDE: THE REACTION IS NOT VIOLENT.

Other Safety Information

Chemical Assessment

>> IMAP assessments - Methane, chloromethoxy-: Environment tier I assessment

>> IMAP assessments - Methane, chloromethoxy-: Human health tier I assessment

"The information provided is believed to be accurate but is not comprehensive and should be used as a reference. It reflects our current knowledge and is intended for safety guidance related to the product. This document does not constitute a warranty of the product's properties. Ionz is not responsible for any damages resulting from handling or contact with the product incorrectly."