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Product #: D1019, D1020, D1030

SAFETY DATA SHEET

TEDIA®
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DICHLOROMETHANE

SDS No. M0061

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Dichloromethane
Synonyms: Methylene Chloride, Methylene Dichloride, Methylene Bichloride, Methane Dichloride, DCM
Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION

Classification:
Acute Toxicity, Oral: GHS Category 4
Skin Irritation: GHS Category 2
Eye Irritation: GHS Category 2B
Carcinogenicity: GHS Category 2

Label Elements
Signal Word: DANGER!
Hazard Statements:
H302 – Harmful if swallowed.
H315 – Causes skin irritation.
H320 – Causes eye irritation.
H336 – May cause drowsiness or dizziness.
H351 – Suspected of causing cancer.
Precautionary Statements:
P261 – Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340+P312 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P332+P313 – If skin irritation occurs: Get medical advice/ attention.
P337+P313 – If eye irritation persists: Get medical advice/ attention.
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P501 – Dispose of contents/ container to an approved waste disposal plant.

Emergency Overview
Harmful if swallowed, inhaled, or absorbed through the skin. Prolonged exposure may cause skin burns. Affects the central nervous system, liver, cardiovascular system, and blood. Causes irritation to the skin, eyes, and respiratory tract. Aspiration hazard. Suspected cancer hazard. Possible static electrical hazard. Target Organs: Blood and central nervous system.

HMIS Rating:
Health – 2* Flammability – 1 Physical Hazard – 0 PPE – User Supplied
NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredient	CAS No	Percent	Hazardous
Dichloromethane	75-09-2	100%	Yes

4. FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air. If breathing is labored or with coughing, give 100% supplemental oxygen. If not breathing, begin artificial respiration using rescuer protection. Get medical aid.
Ingestion: Do not induce vomiting. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention.
Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Notes to Responders: Pay attention to self-protection and use recommended persona protective equipment.
Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. Treat with 100% oxygen. Exposure may increase "myocardial irritability." Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger of lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Carboxyhemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as lung disease, coronary artery disease, or anemia. Skin contact may aggravate preexisting dermatitis.

5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard.
Auto-ignition Temperature: 556.1° C (1033° F)
Flash Point: Not applicable.
Flammable Limits: Lower Limit – 15.1 @ 103xC, Upper Limit – 17.3 @ 148xC
Products of Combustion: May decompose into highly toxic and irritating gases (hydrogen chloride, carbon monoxide, carbon dioxide, and trace amounts of phosgene and chlorine) under fire conditions.
Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear.

Specific Explosion Hazards: Containers may vent and rupture due to fire. Does not have a flash point but can burn at room temperature. Vapors are heavier than air may travel a long distance and accumulate in low lying areas.
Fire Fighting Media: Use water fog, dry chemical, chemical foam, or alcohol resistant foam. Use water spray to keep fire exposed containers cool.
National Fire Protective Association: Health - 2, Flammability - 1, Reactivity - 0
NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Provide ventilation to the affected area. Avoid run-off into storm sewers and ditches that lead to waterways. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Keep container tightly closed. Avoid ingestion and inhalation.
Storage: Keep away from oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Personal Protection: Wear protective chemical goggles or appropriate eye protection. Use appropriate protective gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.
Exposure Limits:
ACGIH – 50 ppm; 174 mg/m^3
NIOSH – Potential Occupational Carcinogen – see Appendix A Potential NIOSH carcinogen
OSHA Final PELs – 25 ppm (8 hr TWA); 125 ppm STEL (15 min TWA); 1800 mg/m^3 TWA
OSHA Vacated PELs: Methylene chloride: 500 ppm TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.
Odor: Ethereal odor
Odor Threshold: 207-305 ppm
Molecular Formula: CH_2Cl_2
Molecular Weight: 84.93
Auto-ignition Temperature: 556.1^o C (1033^o F)
Flash Point: Not applicable.
Flammable Limits: Lower Limit – 15.1 @ 103xC, Upper Limit – 17.3 @ 148xC
pH: Not available.
Boiling Point: 39.8^o C (104^o F)
Freezing/Melting Point: -96.7^o C (-142^o F)
Decomposition Temperature: Not available
Specific Gravity: 1.33 (Water=1)

Vapor Density (Air=1): 2.9
Vapor Pressure: 350 mm Hg @ 20° C.
Viscosity: Not available
Solubility: Moderately soluble in water
Conductivity: Semiconductive; Conductivity = 4300 pS/m; Dielectric Constant = 8.93; Relaxation Time Constant = 1.8×10^{-2} seconds

10. STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid: Incompatible materials, strong oxidants.
Incompatibility With Various Substances: Avoid contact with oxidizing materials and strong bases. Avoid contact with metals such as zinc powders, aluminum powders, magnesium powders, potassium, and sodium. Avoid unintended contact with amines. Water contamination may cause corrosion of metals due to hydrochloric acid formation. Dichloromethane may become flammable in the presence of small amounts of methanol.
Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, carbon dioxide, and trace amounts of phosgene and chlorine.
Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact
Acute Exposure Hazards:

INHALATION HAZARD: In poorly ventilated spaces, vapors can accumulate and cause unconsciousness or death. Vapors may cause irritation of the nose and throat. May interfere with the blood's ability to carry oxygen. Minimal narcotic effects may be seen below 1000 ppm concentration. Levels above 1000 ppm may produce dizziness and drunkenness. Levels over 10,000 ppm may cause cardiac arrhythmia (irregular heartbeat), unconsciousness, and death.

INGESTION HAZARD: Small amounts swallowed incidentally to working are not likely to cause injury. Larger amounts may cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration, chemical pneumonia could follow. Absorption through gastrointestinal tract may produce symptoms of central nervous system depression ranging from light headedness to unconsciousness.

SKIN CONTACT HAZARD: Contact may cause moderate skin irritation and pain. Effects on skin covered by gloves or clothing may be more severe. Prolonged contact may cause burns, pain, severe localized redness, swelling and tissue damage. Extensive contact may cause an intense burning sensation. Prolonged skin contact is not likely to result in harmful amounts being absorbed.

EYE CONTACT HAZARD: Causes moderate eye irritation that may be slow to heal and may cause levels of pain disproportionate to the level of irritation. May cause minor injury to the cornea. Vapors can cause eye irritation, minor discomfort, and redness.

Chronic Exposure Hazards: In animals, chronic exposure had caused damage to kidneys, liver, and blood. Dichloromethane has been shown to increase incidence of tumors in mice and rats. Human epidemiology studies did not shows a tumorigenic response. Dichloromethane is not believed to create a measurable carcinogenic risk to humans when handled correctly. Dichloromethane has been toxic to the fetus in in animals where the dose was toxic to the mother.
Animal Toxicity:
Inhalation, mouse: LC50 = 14,400 ppm/7H;
Inhalation, rat: LC50 = 88 g/m^3/30M;
Oral, rat: LD50 = 1600 mg/kg;
Carcinogenicity: Dichloromethane has been shown to increase the incidence of malignant tumors in mice and benign tumors in rats. Other animal studies, as well as several human epidemiology studies, failed to show a tumorigenic response. Dichloromethane is not believed to pose a measurable carcinogenic risk to humans when handled as recommended. Studies have shown that tumors observed in mice are unique to that species.
ACGIH: A3- Confirmed animal carcinogen with unknown relevance to humans.
California: carcinogen, initial date 4/1/88
NIOSH: occupational carcinogen
NTP: Anticipated carcinogen

OSHA: Potential cancer hazard.
IARC: Group 2B- Possible human carcinogen

Epidemiology: A historical cohort study of persons occupationally exposed to dichloromethane no significantly increased cancer or ischemic heart disease mortality compared to a group of non-exposed employees, as well as general population controls. The most recent update and expansion of this study demonstrated no unusual mortality patterns for hypothesized cause of latency. See IARC Volume 41 for a more detailed discussion.

Teratogenicity:

Specific developmental abnormalities (musculoskeletal/urogenital) observed: Inl-mus TCLo – 1250 ppm/tH, Oral-rat, TDLo = 1260 mg/kg (6-15D preg)

Developmental abnormalities: Craniofacial, Ihl-mouse, TCLo=100 ppm/7Hr (female, 6-15D post); Musculoskeletal, Oral-rat, TDLo+1260 mg/kg (6-15D preg)

Reproductive Effects: Known to be toxic to the fetus at doses toxic to the mother. Animal studies show that it does not interfere with production.

Genetic Toxicology: In vitro genetic toxicity studies were negative in some cases and positive in other cases. Negative or equivocal results have been obtained in genetic toxicity tests with dichloromethane using mammalian cells or animals. This is consistent with the lack of interaction with DNA in rats and hamsters. Although results of Ames bacterial tests have generally been positive, overall the data suggests that genotoxic potential does not appear to be a significant factor in the toxicity of dichloromethane.

Neurotoxicity: No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: This chemical practically non-toxic to aquatic organisms on an acute basis, but it has a moderate chronic potential to affect some aquatic organisms. It is resistant to biodegradation and has a flow potential to persist in the aquatic environment. 96-hr, EC50 (loss of equilibrium); Fathead minnow: 99 mg/L; 96-hr, EC10: 66.3 mg/L; Bluegill sunfish: 96-hr, LC50=220 mg/L; Water flea: 24-hr, LC50=2270 mg/L; No observed effect level: 1550 mg/L.

Environmental Fate: This material is not likely to bioconcentrate.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is a “U” listed waste under 40 CFR 261.33 (U080).

14. TRANSPORT INFORMATION

US DOT, IATA, IMO
Proper Shipping Name: Dichloromethane
Hazard Class: 6.1
UN Number: UN1593
Packing Group: III

Canada TDG
Additional Information: Not available

15. REGULATORY INFORMATION

US Federal Regulations:

TSCA: CAS# 75-09-2 is listed on the TSCA Inventory.
Health and Safety Reporting List: CAS# 75-09-2 effective date: 10/4/1982; Sunset date: 10/4/1992
Chemical Test Rules: CAS# 75-09-2 is not listed.

Section 12b: CAS# 75-09-2 is not listed.
TSCA Significant New Use Rule: Does not have an SNUR under TSCA.
CERCLA Hazardous Substances: CAS# 75-09-2 – 1000 lb final RQ; 454 kg final RQ
SARA Section 302: Does not have a TPQ
SARA Codes: CAS# 75-09-2 – acute, chronic
Section 313: Dichloromethane (CAS# 75-09-2) is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.
Clean Air Act: CAS# 75-09-2 is listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.
Clean Water Act: CAS# 75-09-2 is listed as a Hazardous Substance. It is listed as a Priority Pollutant. It is not a Toxic Pollutant.
OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 75-09-2 is on the following state right-to-know lists: California, Florida, New Jersey, Pennsylvania, Minnesota, and Massachusetts
The following statement is made in order to comply with the California State Drinking Water Act: WARNING: This product contains Methylene chloride, a chemical known to the state of California to cause cancer. California No Significant Risk Level = 50 ug/day.

Canada:

DSL/NDSL: CAS# 75-09-2 is listed on Canada's DSL list.
WHMIS: This product has a WHMIS classification of D1B, D2A, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.
Ingredient Disclosure List: CAS# 75-09-2 is not listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: Xn
Risk Phrases: R40 – Possible risk of irreversible effects.
Safety Phrases: S23 – Do not inhale gas/fumes/vapor/spray; S24/25 – Avoid contact with skin and eyes; S36/37: Wear suitable protective clothing and gloves.
WGK (Water Danger/protection): CAS# 75-09-2: 2

16. OTHER INFORMATION

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