

4397



American Scientific, LLC

Safety Data Sheet

Section 1

Product Description

2010-20 Hand Boiler (Methylene chloride)

Product Name:	Methylene chloride
Recommended Use:	Science education applications
Synonyms:	Dichloromethane
Manufacturer:	American Scientific, LLC 6420 Fiesta Drive, Columbus, OH 43235
Chemical Information:	800-227-1150 (8am-5pm (ET) M-F)
Chemtrec for Emergency:	800-424-9300 (Transportation Spill Response 24 hours)
Phone Number for Information:	(614) 764-9002
Fax Number for Information:	(614) 764-9043

Section 2

Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;



EMERGENCY OVERVIEW: This product is a clear liquid. Has a sweet, mild odor. Not flammable. The product causes irritation of eyes, skin and mucous membranes. Harmful by inhalation, in contact with skin and if swallowed. May be fatal if inhaled. Causes headache, drowsiness or other effects to the central nervous system. Limited evidence of a carcinogenic effect. Do not allow product to contact skin, eyes and clothing. Do not breathe vapors.

Potential Acute Health Effects: Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

GHS Classification:

Flammable Solid Category 1, Substance or mixture which in contact with water emits flammable gas Category 1

Potential Chronic Health Effects: **Carcinogenic Effects:** Classified + (proven.) by OSHA. Classified of 2B (Possible for human.) by IARC. **Mutagenic Effects:** Not available. **Teratogenic Effects:** Not available. **Developmental Toxicity:** Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 3**Composition / Information on Ingredients****Chemical Name:** Methylene chloride**CAS #** 75-09-2**% by Weight:** 100

Toxicological Data on Ingredients: Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg (Rat)

Component Information/Information on Non-Hazardous Components

This product is considered to be hazardous according to the criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard) and the Canadian Controlled Product Regulations.

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

Section 4**First Aid Measures****Emergency and First Aid Procedures**

Inhalation: In case of accident by inhalation: Move to area with fresh air. If not breathing, Give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Eyes: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as collar, tie, belt, or waistband.

Section 5**Firefighting Procedures**

Extinguishing Media: Use alcohol-resistant foam, carbon dioxide (CO₂) or dry chemical.

Fire Fighting Methods and Protection:

Water may be ineffective. Fire-fighters should wear self-contained, NIOSH-approved breathing apparatus and in the event of fire, cool tanks with water spray. Do not use a solid water stream as it may scatter and spread fire. After fire, Flush area with water to prevent re-ignition. Do not allow run-off from firefighting to enter drains or water courses.

Flammable Properties**Flash Point:** Would not flash**Flash Point Method:** Closed Cup**Autoignition Temperature:** 1033°F (556°C)**Upper Flame Limit (volume % in air):** 19**Lower Flame Limit (volume % in air):** 12**Flame Propagation Rate (solids):** Not applicable**OSHA Flammability Class:** Not applicable**Hazardous Combustion Products:**

Not flammable. Irritating and/or toxic gases may be emitted upon the product's decomposition. Hazardous combustion products may include carbon monoxide, carbon dioxide (CO₂) phosgene, hydrogen chloride gas and chlorine gas.

Spill or Leak Procedures**Steps to Take in Case Material is Released or Spilled:**

Containment Procedures: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Stop flow of material, if this is without risk.

Cleanup Procedures: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Shovel into suitable container for disposal. Do not allow product to enter sewer or waterways.

Evacuation Procedures: Keep unnecessary people away. Isolate area.

Special procedures: Use personal protective equipment.

Spills and releases may have to be reported to Federal and/or local authorities. See section 15 regarding reporting requirements.

Section 7

Handling and Storage

Handling: (always wear recommended personal protective equipment.)

Ensure adequate ventilation. DO not allow product to contact skin, eyes, and clothing. Do not breathe vapors. Keep away from fire, sparks, and heated surfaces. Keep container tightly closed in a dry and well-ventilated place.



Storage Recommendations:

Keep in a well ventilated place. Empty containers may retain product residue. Store away from incompatible substances. Re-open used containers with caution. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Protect from extremes of temperature and direct sunlight.

Section 8

Protection Information

Engineering Controls:

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product in closed system. Local exhaust ventilation is preferred. Prevent electrostatic charge build-up by using common bonding and grounding techniques.

Personal Protective Equipment

Skin Protection:

Wear impervious gloves and impervious clothing. Gloves must be inspected prior to use. For leak, spills, or other emergency, use full protective equipment.

Eye Protection:

For handling in closed ventilation system, wear safety glasses with side-shields. For situations where splashing is likely or for leak, spill or other emergency, use chemical goggles and face-shield. Remove contact lenses.

Respiratory Protection:

When workers are facing concentrations above the exposure limit, they must use appropriate certified respirators.

Additional Recommendations:

Provide eyewash stations and quick-drench shower facilities.

Exposure Guidelines

Component Exposure Limits Dichloromethane (75-09-2)

ACGIH: 50ppm TWA

OSHA: 25 ppm TWA (8hr) (Skin); 125 ppm STEL (15 min)(skin); 12.5 ppm Action Level (See 29 CFR 1910.1052)

OSHA (Vacated): 500 ppm TWA; 2000 ppm STEL (5 min in any 3 hrs); 1000 ppm Ceiling

Alberta: 50 ppm TWA; 174 mg/m3 TWA

British Columbia:	IARC Category 2B – Possible Human Carcinogen; 25 ppm TWA
Manitoba:	100 ppm TWA; 350 mg/m ³ TWA; 500 ppm STEL; 1740 mg/3 STEL
New Brunswick:	50 ppm TWA; 174 mg/m ³ STEL
Northwest Territories:	100 ppm TWA; 347 mg/m ³ TWA
Nova Scotia:	50 ppm TWA
Nunavut:	100 ppm TWA; 347 mg/m ³ TWA
Ontario:	50 ppm TWAEV; 174 mg/m ³ TWAEV
Quebec:	50 ppm TWAEV; 174mg/m ³ TWAEV
Saskatchewan:	174 mg/m ³ TWA; 50 ppm TWA
Yukon:	200 ppm TWA; 700 mg/m ³ TWA (listed as Dichloromethane)

Section 9

Physical Data

APPEARANCE: Clear, colorless liquid

PHYSICAL STATE: Liquid

MOLECULAR WEIGHT: 84.94

CHEMICAL FORMULA: CH₂Cl₂

ODOR: Mild, sweet (similar to Chloroform)

SPECIFIC GRAVITY (water = 1.0): 1.33

SOLUBILITY IN WATER (weight %): 1.32 gm/ 100gm @ 77°F (25°C)

pH: Not applicable

BOILING POINT: 140°F (40°C)

MELTING POINT: -139°F (-95°C)

VAPOUR PRESSURE: 350 mm Hg at 68°F (20°C)

VAPOUR DENSITY (air = 1.0): 2.9

EVAPOURATION RATE: 0.7 COMPARED TO: Ethyl Ether = 1

% VOLATILES: 100

FLASH POINT: Would not flash

(Flash point method and additional flammability data are found in Section 5.)

Section 10

Reactivity Data

Normally Stable? (Conditions to Avoid)

Stable under recommended storage conditions.

Avoid: Incompatible products

Incompatibilities:

Keep away from oxidizing agents, strongly alkaline and strongly acid materials, metals, aluminum, and magnesium.

Hazardous Decomposition Products:

Hazardous decomposition products include carbon monoxide, carbon dioxide (CO₂) phosgene, hydrogen chloride gas and chlorine gas.

Hazardous Polymerization:

Hazardous polymerization does not occur.

Section 11

Toxicity Data

Dichloromethane Component analysis – LD50/LC50

Dichloromethane (75-09-2)

Rat: LD50 – Route: Oral; Dose: 1410 mg/kg
 LD50 – Route: Dermal; Dose: >2000mg/kg

Immediate (Acute) Effects:

The product causes irritation of eyes, skin and mucous membranes. Harmful by inhalation, in contact with skin and if swallowed. Causes headache, drowsiness or other effects to the central nervous system.

Exposure to high concentrations can lead to increased carboxyhemoglobin levels in the blood. Carboxyhemoglobin can lead to respiratory failure and central nervous system depression by decreasing the oxygen carrying capacity of blood. Persons who smoke tobacco products will experience an intensified elevation of carboxyhemoglobin levels. Memory loss, central nervous and psychomotor disturbances, headaches, and other effects are also possible related to carboxyhemoglobin levels.

Delayed (Sub chronic and chronic) Effects:

Repeated or prolonged exposure may cause damage to the heart, liver and kidney. Chronic exposure may cause headache, mental confusion, depression, bronchitis, loss of appetite, nausea, lack of balance, and visual disturbances.

Mutagenicity: Mutagenic in salmonella typhimurium Ames assay

- : Gene mutation in hamster ovary cells (3,000 ppm)
- : DNA damage in mouse liver cells (400 u mol/L)

Other Data:

Limited evidence of a carcinogenic effect.

Component Carcinogenicity

Dichloromethane (75-09-2)

ACGIH: A4 – Confirmed animal carcinogen with unknown relevance to humans
 OSHA: Suspect Carcinogen
 NIOSH: Potential occupational carcinogen
 NTP: Reasonably Anticipated to Be a Carcinogen (possible select carcinogen)
 IARC: Monograph 71, 1999 (Group 2B (possibly carcinogenic to humans))

Section 12

Ecological Data

Overview: Prevent from entering sewer or waterway. This material is not expected to be harmful to aquatic life.

Component Analysis – Eco toxicity – Aquatic Toxicity



Dichloromethane (75-09-2)

Test & Species

96 Hr LC50 fathead minnow 330 mg/L
 96 Hr LC50 rainbow trout 10.95 mg/L
 96 Hr LC50 bluegill 220 mg/L
 15 min EC50 Photobacterium phosphoreum 1000 mg/L
 48 Hr EC50 water flea 140 mg/L

Conditions

flow-through
 flow-through
 static

Static

Accumulation in terrestrial organisms is unlikely. Bioaccumulation is unlikely.

Section 13**Disposal Information****Disposal Methods:**

U080. Dispose of as special waste in compliance with local and national regulations. Waste codes should be assigned by the user based on the application for which the product was used. Incineration of waste material in an EPA-approved facility is recommended, allowing a solid, inert residue to form.

Other Disposal Considerations: Observe all Federal, State, and Local Environmental regulations.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

Section 14**Transport Information**

US DOT PROPER SHIPPING NAME: Dichloromethane
US DOT Hazard Class: 6.1 **Packing Group:** III
US DOT Id Number: UN1593

TDG Proper Shipping Name: Dichloromethane
TDG Hazard Class: 6.1 **Packing Group:** III

North American Emergency Response Guide (ERG) Number: 160

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

Section 15**Regulatory Information****TOXIC SUBSTANCES CONTROL ACT (TSCA)**

TSCA INVENTORY STATUS: All components are on the U.S. EPA TSCA Inventory List.

OTHER TSCA ISSUES: Additional TSCA information may exist. Contact VWR if you have questions regarding your application or use of this product.

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (lbs.)</u>	<u>SARA EHS TPQ (lbs.)</u>
Dichloromethane (75-09-2)	1000	None

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate. Delayed.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>
Dichloromethane (75-09-2)

<u>COMMENT</u>
0.1 % de minimis concentration

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT %	COMMENT
Dichloromethane (75-09-2)	100	CA, MA, MN, NJ, PA, RI

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

ADDITIONAL REGULATORY INFORMATION:

None.

WHMIS CLASSIFICATION (CANADA):

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

WHMIS Classification:

D1B- Very Toxic Material
D2A- Chronic Toxic Effects
D2B- Toxic Material

FOREIGN INVENTORY STATUS:

Component Analysis – Inventory

Component	CAS #	TSCA	CAN	EEC	AUST	PHIL	MITI	Korea	China
Methylene chloride	75-09-2	Yes	DSL	EINECS	Yes	Yes	Yes	Yes	Yes

Section 16**Additional Information**

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. American Scientific, LLC makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

OTHER INFORMATION: As per the OSHA Hazard Communication Standard, 1910.1200, the information contained within this MSDS must be given to those persons using this material. For educational use only. Not for food or drug use. Do not store with foodstuffs.

Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act

N/A

Not Available

SARA

Superfund Amendments and
Reauthorization Act

TLV
IDLH

Threshold Limit Value
Immediately dangerous to life
and health