SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Dichloromethane

Other means of identification

Synonyms: Methylene chloride
Product No.: 4879, 4881, 4883, 4884, 5275, 9264, 9316, 9410, H077, H485, H570, H572

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.
Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name:	Avantor Performance Materials, LLC
Address:	100 Matsonford Rd, Suite 200 Radnor, PA 19087
Telephone:	Customer Service: 855-282-6867
Contact Person:	Product Information Compliance
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Carcinogenicity	Category 1B
Specific Target Organ Toxicity - Single Exposure	Category 3[1.]

Target Organs

1. Respiratory tract irritation., Narcotic effect.

Unknown toxicity - Health

Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: IF exposed or concerned: Call a POISON CENTER/doctor. IF SWALLOWED: Rinse mouth. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: 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. IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Substances

Chemical Identity	CAS number	Content in percent (%)*
Dichloromethane	75-09-2	99 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Inhalation:	Move to fresh air. Call a POISON CENTER/doctor if you feel unwell.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air.

Most important symptoms/effects, acute and delayed

Symptoms:	Irritating to eyes, respiratory system and skin. May cause drowsiness or dizziness.
Hazards:	Irritant. Harmful if swallowed. Suspected of causing cancer.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards:	May burn, but does not ignite readily. In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the chemical:	Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep upwind.
Methods and material for containment and cleaning up:	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling: Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid breathing mist or vapor. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in a dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Dichloromethane	TWA	50 ppm	US. ACGIH Threshold Limit Values (2011)
	OSHA_ACT	12.5 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (02 2006)
	REF	29 CFR 1910.1052	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (03 2012)
	TWA	25 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (02 2006)
	STEL	125 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (02 2006)
	ST ESL	1,100 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	AN ESL	100 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	ST ESL	3,600 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	AN ESL	350 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	TWA PEL	25 ppm 87 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
	STEL	125 ppm 435 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
	TWA A LV	12.5 ppm	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Dichloromethane (dichloromethane: Sampling time: End of shift.)	0.3 mg/l (Urine)	ACGIH BEI (03 2013)

Appropriate Engineering Controls Adequate ventilation should be provided so that exposure limits are not exceeded.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eye/face protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Skin Protection	
Hand Protection:	Chemical resistant gloves
Other:	Wear suitable protective clothing and gloves.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Color:	Colorless
Odor:	Pleasant sweet odor
Odor threshold:	No data available.
pH:	Not applicable
Melting point/freezing point:	-95 °C
Initial boiling point and boiling range:	39 - 40 °C
Flash Point:	No data available.
Evaporation rate:	0.71 (ether=1)
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	22 %(V)
Flammability limit - lower (%):	13 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	58.00 kPa (25 °C)
Vapor density:	2.93 AIR=1.02
Density:	1.32 g/ml (20 °C)
Relative density:	1.33 (20 °C)
Solubility(ies)	
Solubility in water:	20 g/l
Solubility (other):	ethanol: Miscible
Partition coefficient (n-octanol/water):	1.25
Auto-ignition temperature:	600 - 615 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.

Other information

Minimum ignition energy:	> 1 J
Molecular weight:	84.93 g/mol (CH2Cl2)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Excessive heat. Moisture.
Incompatible Materials:	Strong oxidizing agents. Acids. Caustics. Aluminum. Chemically active metals. May attack some plastics, rubber and coatings.
Hazardous Decomposition Products:	Thermal decomposition may release oxides of carbon. Hydrogen chloride. phosgene

11. Toxicological information

Information on likely routes of exposure

Inhalation:	High vapor concentrations may cause drowsiness and irritation.
Skin Contact:	Causes skin irritation.
Eye contact:	Causes serious eye irritation.
Ingestion:	Harmful if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: LD 50 (Rat): 1,600 mg/kg

Dermal
Product: LD 50 (Rat) > 2,000 mg/kg

Inhalation
Product: LC 50 (Rat, 6 h) 52 mg/l

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: Causes skin irritation.

Serious Eye Damage/Eye Irritation
Product: Causes serious eye irritation.

Respiratory or Skin Sensitization
Product: Not a skin nor a respiratory sensitizer.

Carcinogenicity
Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Dichloromethane	Overall evaluation: 2A. Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Dichloromethane	Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
Dichloromethane
Cancer

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure
Product: Narcotic effect.

Specific Target Organ Toxicity - Repeated Exposure
Product: None known.

Target Organs
Specific Target Organ Toxicity - Single Exposure: Respiratory tract irritation., Narcotic effect.

Aspiration Hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC 50 (Fathead minnow (Pimephales promelas), 96 h): 140.8 mg/l

Aquatic Invertebrates
Product: EC 50 (Water flea (Daphnia magna), 48 h): 1,250 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: Expected to biodegrade slowly.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: 1.25

Mobility in soil: The product is partly soluble in water. May spread in the aquatic environment.

Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 1593
UN Proper Shipping Name:	Dichloromethane
Transport Hazard Class(es)	
Class:	6.1
Label(s):	6.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IMDG

UN Number:	UN 1593
UN Proper Shipping Name:	DICHLOROMETHANE
Transport Hazard Class(es)	
Class:	6.1
Label(s):	6.1
EmS No.:	F-A, S-A
Packing Group:	III
Marine Pollutant:	No

Special precautions for user: Not determined.

IATA

UN Number: UN 1593
Proper Shipping Name: Dichloromethane
Transport Hazard Class(es):
Class: 6.1
Label(s): 6.1
Packing Group: III
Marine Pollutant: No
Special precautions for user: Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Chemical Identity	OSHA hazard(s)
Dichloromethane	Eye irritation Skin irritation Cancer Heart Central nervous system Liver

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
Dichloromethane	1000 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Acute toxicity (any route of exposure)
Skin Corrosion or Irritation
Serious eye damage or eye irritation
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Dichloromethane	1000 lbs.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Dichloromethane	10000 lbs.

SARA 313 (TRI Reporting)

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Dichloromethane	10000 lbs.	25000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

Dichloromethane	Carcinogenic. WARNING: This product contains a chemical known to the State of California to cause cancer.

which is [are] known to the State of California to cause cancer.

Dichloromethane	Carcinogenic. WARNING: This product contains a chemical known to the State of California to cause cancer.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Dichloromethane

US. Massachusetts RTK - Substance List

Chemical Identity
Dichloromethane

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
Dichloromethane

US. Rhode Island RTK

Chemical Identity
Dichloromethane

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

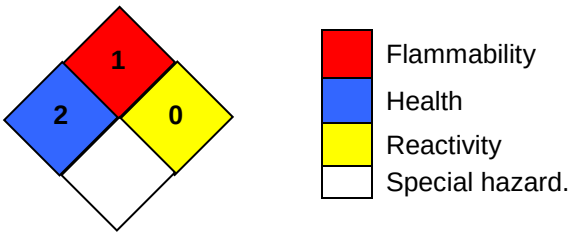
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16.Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date:	03-29-2019
Revision Information:	Not relevant.
Version #:	2.4
Source of information:	Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.
Further Information:	No data available.

Disclaimer:

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