

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/15/2010

Reviewed on 06/14/2010

1 Identification of substance:**Product details:****Product name:** Dichloromethane**Stock number:** 39116**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Dichloromethane (CAS# 75-09-2)

Identification number(s):**EINECS Number:** 200-838-9**Index number:** 602-004-00-3**3 Hazards identification****Hazard description:**

Xn Harmful

Information pertaining to particular dangers for man and environment

R 40 Limited evidence of a carcinogenic effect.

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	*1
FIRE	1
REACTIVITY	1

Health (acute effects) = *1

Flammability = 1

Reactivity = 1

GHS label elements

Warning

3.6/2 - Suspected of causing cancer.

Prevention:

Do not breathe dust/fume/gas/mist/vapours/spray.

Do not get in eyes, on skin, or on clothing.

Wear protective gloves/clothing.

4 First aid measures**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

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5 Fire fighting measures**Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

Phosgene gas

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires: Keep ignition sources away.**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Store away from oxidizing agents.**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Dichloromethane

	ppm
ACGIH TLV	50; Confirmed animal carcinogen
Austria MAK	100; Suspected carcinogen
Belgium TWA	50; Carcinogen
Denmark TWA	35 (skin)
Finland TWA	100; 250-STEL
France VME	50; 100-VLE, C3 carcinogen
Germany MAK	100; Carcinogen
Hungary	10 mg/m ³ -STEL; Carcinogen
Japan OEL	50
Korea TLV	50; Confirmed animal carcinogen
Netherlands MAC-TGG	100; 500-MAC-K
Norway TWA	35
Poland TWA	20 mg/m ³ ; 50 mg/m ³ -STEL
Russia TWA	100; 50-STEL
Sweden NGV	35; 70-KTV (skin)
Switzerland MAK-W	100; 500-KZG-W
United Kingdom TWA	100; 300-STEL

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Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Refer to 29CFR1910.1052 for regulations on respiratory protection required during exposure to dichloromethane

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form:	Liquid
Color:	Colorless
Odor:	Sweet

Change in condition**Melting point/Melting range:** -95°C (-139°F)**Boiling point/Boiling range:** 39.8°C (104°F)**Sublimation temperature / start:** Not determined**Flash point:** Not applicable**Ignition temperature:** 661°C (1222°F)**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:****Lower:** 14 Vol %**Upper:** 22 Vol %**Vapor pressure at 22°C (72°F):** 505 hPa (379 mm Hg)**Density at 20°C (68°F):** 1.325 g/cm³**Solubility in / Miscibility with****Water at 20°C (68°F):** 20 g/l**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents

Alkali metals

Alkaline earth metals

Dangerous reactions

Reacts with alkali metals.

Reacts with alkaline earth metals.

Reacts violently with nitric acid (HNO₃).**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

Phosgene

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11 Toxicological information**Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	873 mg/kg (mouse) (RTECS)
		1600 mg/kg (rat) (RTECS)
	LDLo	357 mg/kg (human) (RTECS)
Inhalative	LC50/4H	76000 mg/m ³ /4H (rat) (RTECS)
Irritation of skin	moderate	100 mg/24H (rabbit) (RTECS)
Irritation of eyes	mild	100 mg/24H (rabbit) (RTECS)
	moderate	162 mg (rabbit) (RTECS)

Primary irritant effect:**on the skin:** Irritant to skin and mucous membranes.**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Tumorigenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Subacute to chronic toxicity:

Dichloromethane has strong narcotic effects. It is metabolized by the body producing carbon monoxide which reduces the oxygen carrying capacity of the blood. Exposure can lead to nausea, dizziness, headache and central nervous system disturbances. It is irritating to the skin and eyes. Chronic exposure may cause bronchitis, liver, kidney and pancreatic damage. Dichloromethane has caused carcinogenic, teratogenic and reproductive effects in laboratory animals. Memory loss, poor coordination, and reduced ability to think may result from brain damage. Dichloromethane may affect human sperm and can cross the placenta.

Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).

Kidney, Ureter, Bladder - changes in bladder weight.

Kidney, Ureter, Bladder - other changes.

Skin and Appendages - tumors.

Liver - other changes.

Liver - changes in liver weight.

Related to Chronic Data - death.

Blood - normocytic anemia.

Blood - methemoglobinemia-carboxyhemoglobin.

Blood - other changes.

Blood - leukemia.

Brain and Coverings - other degenerative changes.

Nutritional and Gross Metabolic - changes in iron.

Peripheral Nerve and Sensation - paresthesia.

Behavioral - somnolence (general depressed activity).

Behavioral - convulsions or effect on seizure threshold.

Behavioral - hallucinations, distorted perceptions.

Behavioral - altered sleep time (including change in righting reflex).

Behavioral - antipsychotic.

Behavioral - euphoria.

Behavioral - general anesthetic.

Behavioral - food intake (animal).

Behavioral - ataxia.

Behavioral - fluid intake.

Nutritional and Gross Metabolic - body temperature increase.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Lungs, Thorax, or Respiration - structural or functional change in trachea or bronchi.

Lungs, Thorax, or Respiration - dyspnea.

Lungs, Thorax, or Respiration - acute pulmonary edema.

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - tumors.

Gastrointestinal - ulceration or bleeding from stomach.

Gastrointestinal - ulceration or bleeding from small intestine.

Sense Organs and Special Senses (Eye) - miosis (pupillary constriction).

Vascular - BP lowering not characterized in autonomic section.

Cardiac - change in rate.

Liver - hepatitis (hepatocellular necrosis), zonal

Liver - fatty liver degeneration.

Endocrine - changes in spleen weight.

Endocrine - tumors.

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Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - dehydrogenases.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other esterases.
 Biochemical - Neurotransmitters or modulators (purative) - dopamine in striatum.
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other enzymes.
 Biochemical - Neurotransmitters or modulators (putative) - dopamine at other sites
 Biochemical - Metabolism (Intermediary) - lipids including transport.
 Reproductive - Effects on Newborn - behavioral.
 Reproductive - Specific Developmental Abnormalities - musculoskeletal system.
 Reproductive - Specific Developmental Abnormalities - urogenital system.
 Tumorigenic - carcinogenic by RTECS criteria.
 Tumorigenic - neoplastic by RTECS criteria.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

Carcinogen as defined by OSHA.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

12 Ecological information:**Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations**Product:**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information**DOT regulations:**

Hazard class: 6.1
Identification number: UN1593
Packing group: III
Proper shipping name (technical name): DICHLOROMETHANE
Label: 6.1

Land transport ADR/RID (cross-border)

ADR/RID class: 6.1 (T1) Toxic substances
Danger code (Kemler): 60

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UN-Number: 1593
Packaging group: III
Description of goods: 1593 DICHLOROMETHANE

Maritime transport IMDG:

IMDG Class: 6.1
UN Number: 1593
Label: 6.1
Packaging group: III
Marine pollutant: No
Segregation groups: Liquid halogenated hydrocarbons
Proper shipping name: DICHLOROMETHANE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 1593
Label: 6.1
Packaging group: III
Proper shipping name: DICHLOROMETHANE

UN "Model Regulation": UN1593, DICHLOROMETHANE, 6.1, III

15 Regulations**Product related hazard informations:****Hazard symbols:**

Xn Harmful

Risk phrases:

40 Limited evidence of a carcinogenic effect.

Safety phrases:

23 Do not breathe fumes

24/25 Avoid contact with skin and eyes.

36/37 Wear suitable protective clothing and gloves.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations

Refer to 29CFR1910.1052 for regulations on respiratory protection required during exposure to dichloromethane

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.**Contact:** Zachariah Holt

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Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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