Chemical Safety Data Sheet MSDS / SDS

Diazomethane SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Diazomethane

CAS: 334-88-3

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

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SECTION 2: Hazards identification

Classification of the substance or mixture

Carcinogenicity, Category 1B

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H350 May cause cancer

Precautionary statement(s)

Prevention

P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P318 IF exposed or concerned, get medical advice.

Storage

P405 Store locked up.

Disposal

P501 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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Diazomethane

Common names and synonyms: Diazomethane

CAS number:	334-88-3
EC number:	206-382-7
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

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

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention . Wear protective gloves when administering first aid.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Unlikely under occupational conditions.

Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin and/or eye contact (liquid) Symptoms: Irritation eyes; cough, shortness breath; headache, lassitude (weakness, exhaustion); flush skin, fever; chest pain, pulmonary edema, pneumonitis; asthma; liquid: frostbite Target Organs: Eyes, respiratory system (NIOSH, 2016)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Firefighting measures

Suitable extinguishing media

If material /is/ on fire or involved in /a/ fire use dry chemical, dry sand, or carbon dioxide. Do not use water on material itself. If large quantities of combustibles are involved, use water in flooding quantities as spray and fog. Use water spray to knock-down vapors. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

Specific hazards arising from the chemical

Excerpt from ERG Guide 119 [Gases - Toxic - Flammable]: Flammable; may be ignited by heat, sparks or flames. May form explosive mixtures with air. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Some of these materials may react violently with water. Cylinders exposed to fire may vent and release toxic and flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. Runoff may create fire or explosion hazard. (ERG, 2016)

Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with powder, carbon dioxide. Combat fire from a sheltered position.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Ventilation. Personal protection: complete protective clothing including self-contained breathing apparatus.

Environmental precautions

Evacuate danger area! Consult an expert! Ventilation. Personal protection: complete protective clothing including self-contained breathing apparatus.

Methods and materials for containment and cleaning up

In the event of a spill or leak involving diazomethane, persons not wearing protective equipment and clothing should be restricted from contaminated areas until cleanup has been completed. The following steps should be undertaken following a spill or leak: Notify safety personnel. Remove all sources of heat and ignition. Ventilate potentially explosive atmospheres. Provide and require the use of fully-encapsulating, vapor-protective clothing and equipment for cleanup personnel. If possible without risk, stop flow of

gas. If source of leak is a cylinder and cannot be stopped in place, remove the leaking cylinder to a safe place in the open air, and repair leak or allow cylinder to empty. If the leak is in the liquid form, allow diazomethane to evaporate.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT expose to friction or shock. Prevent build-up of electrostatic charges (e.g., by grounding). Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Solutions of diazomethane should not be stored. See Notes.Diazomethane should be stored in a cool, dry, well-ventilated area in tightly sealed containers that are labeled in accordance with OSHA's Hazard Communication Standard. Containers of diazomethane should be protected from shock, heat, sparks, open flames and physical damage and should be stored separately from alkali metals, calcium sulfate, calcium chloride, boiling stones, or copper powder. Outside or detached storage is preferred. Empty containers of diazomethane should be handled appropriately.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.2 ppm as TWA; A2 (suspected human carcinogen).MAK: carcinogen category: 2

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

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

Skin protection

Cold-insulating gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Diazomethane is a yellow gas with a musty odor that is shipped as a liquid under pressure. (NIOSH, 2016) Highly toxic by inhalation.
Colour:	Yellow gas [Note: Shipped as a liquefied compressed gas]
Odour:	Musty odor
Melting point/freezing point:	-145°C
Boiling point or initial boiling point and boiling range:	-9° F at 760 mm Hg (NIOSH, 2016)
Flammability:	Flammable Gas [EXPLOSIVE!]
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	Flammable gas
Auto-ignition temperature:	Explodes at 100 deg C (212 deg F) or if impurities are present, at lower temperatures. Vapor may explode at temperatures above 200 deg C (392 deg F).
Decomposition temperature:	no data available

pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Reacts with water (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Kow = 2.00 (est)
Vapour pressure:	greater than 1 atm (NIOSH, 2016)
Density and/or relative density:	1.45
Relative vapour density:	1.45 (Air = 1)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

May decompose explosively on shock, friction or concussion. May explode on heating at 100°C or on contact with rough surfaces or if impurities or solids are present in the undiluted liquid or in the concentrated solutions or under high intensity lighting. Contact with alkali metals and calcium sulfate causes explosion.

Chemical stability

no data available

Possibility of hazardous reactions

The gas is heavier than air and may travel along the ground; distant ignition possible.DIAZOMETHANE undergoes violent thermal decomposition. Above 200°C. the vapors may explode violently if rough glass surfaces are present. Explosions at low temperatures can occur if traces of organic matter are present. [J. Phys. Chem. 35:1403(1931)]. Produces explosions with alkali metals. Reacts with copper powder and to some extent all solid surfaces to produce nitrogen and solid white polymethylene. Reacts with dimethylaminodimethylarsine and trimethyltin in ether with vigorous foaming.

Conditions to avoid

no data available

Incompatible materials

Contact between diazomethane and alkali metals, calcium sulfate, calcium chloride, boiling stones, or copper powder will cause explosions.

Hazardous decomposition products

When heated to decomposition ... emits highly toxic fumes of /nitrogen oxides./ srp: diazomethane does not need to decompose to emit toxic fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

No data are available in humans. Limited evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

No information is available on the reproductive or developmental effects of diazomethane in humans or animals.

STOT-single exposure

The substance is very corrosive to the eyes, skin and respiratory tract. Inhalation of the vapour may cause lung oedema. Inhalation of the vapour may cause asthma-like reactions (RADS). See Notes. The liquid may cause frostbite. Exposure above the OEL could cause death. Medical observation is indicated.

STOT-repeated exposure

Repeated or prolonged inhalation may cause asthma. This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

Diazomethane is a gas and reacts rapidly with water; therefore biodegradation is not expected to be an important environmental fate process. (SRC)

Bioaccumulative potential

Diazomethane is a gas and undergoes rapid hydrolysis with water; therefore, bioconcentration is not expected to be an important

environmental fate process. (SRC)

Mobility in soil

Diazomethane is a gas and undergoes rapid hydrolysis with water; therefore, adsorption is not expected to be an important environmental fate process. (SRC)

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Not Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Because of its toxicity and its explosive nature, diazomethane is freshly prepared in situ and used in solution of ether or dioxane. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate spray, by a doctor or a person authorized by him/her, should be considered. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. The relation between odour and the occupational exposure limit cannot be indicated. The recommendations on this Card also apply to concentrated solutions of diazomethane.