

Chemical Safety Data Sheet MSDS / SDS

Dimethoxymethane SDS

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

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

Product name: Dimethoxymethane

CAS: 109-87-5

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**

Flammable liquids, Category 2

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

P370+P378 In case of fire: Use ... to extinguish.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.

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:	Dimethoxymethane
Common names and synonyms:	Dimethoxymethane
CAS number:	109-87-5
EC number:	203-714-2
Concentration:	100%

SECTION 4: First aid measures**Description of necessary first-aid measures****If inhaled**

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

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

Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

VAPOR: Irritating to eyes, nose and throat. Harmful if inhaled. LIQUID: Irritating to skin and eyes. Harmful if swallowed. (USCG, 1999)

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

If methylal gets into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation is present after washing, get medical attention. Contact lenses should not be worn when working with this chemical.

SECTION 5: Firefighting measures

Suitable extinguishing media

To fight fire: foam, carbon dioxide, dry chemical ...

Specific hazards arising from the chemical

FLAMMABLE. Irritating gases may be produced when heated. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Irritating formaldehyde gas may be present in smoke. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, dry powder, carbon dioxide, alcohol-resistant foam. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Consult an expert! Personal protection: filter respirator for organic vapours of low boiling point adapted to the airborne concentration of the substance. Remove all ignition sources. Cover the spilled material with sand or other non-combustible material. Collect leaking liquid in covered containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Personal protection: self-contained breathing apparatus.

Methods and materials for containment and cleaning up

1. remove all ignition sources. 2. ventilate area of spill or leak. 3. for small quantities, absorb on paper towels. evaporate in safe place (such as fume hood). allow sufficient time to completely clear hood ductwork. burn paper in suitable location away from combustible materials. 3. large quantities can be collected, dissolved in alc of greater molecular wt than butyl alc, & atomized in suitable combustion chamber. methylal should not be allowed to enter confined space, such as sewer, because of the possibility of an explosion.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with strong oxidizing agents or strong bases. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. 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

Fireproof. Separated from strong oxidants. Cool. Keep in the dark. Well closed. Store only if stabilized.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1000 ppm as TWA.MAK: 1600 mg/m³, 500 ppm; peak limitation category: II(2); pregnancy risk group: C; (DFG 2018)

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 safety spectacles.

Skin protection

Protective 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:	Liquid.
Colour:	Colourless.
Odour:	CHLOROFORM ODOR
Melting point/freezing point:	≤ -85.1 °C. Atm. press.:1 atm.
Boiling point or initial boiling point and boiling range:	≥ 124.34 °C. Atm. press.:Ca. 760 mm Hg.
Flammability:	Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 2.2% by volume; Upper flammable limit: 13.8% by volume
Flash point:	42 °C. Atm. press.:1 atm.
Auto-ignition temperature:	285 °C. Atm. press.:1 atm.
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	dynamic viscosity (in mPa s) = 1.72. Temperature:20°C.
Solubility:	33 % (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Pow = -0.77. Temperature:28 °C.

Vapour pressure:	9.5 mm Hg. Temperature:25 °C. Remarks:Equivalent to 12.7 hPa at 25 C.
Density and/or relative density:	Ca. 0.97 g/cm ³ . Temperature:20 °C.
Relative vapour density:	2.6 (USCG, 1999) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

2200 ppm [Based on 10% of the lower explosion limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.]
The substance can presumably form explosive peroxides. May explode on heating. Reacts vigorously with strong oxidants. This generates fire and explosion hazard.

Chemical stability

Stable under neutral or alkaline conditions ketals

Possibility of hazardous reactions

DANGEROUS, WHEN EXPOSED TO HEAT, FLAME, OXIDIZERThe vapour is heavier than air and may travel along the ground; distant ignition possible.METHYLAL, an acetal, is incompatible with strong oxidizing agents and acids (NIOSH, 2016). Breaks down to formaldehyde and methanol in acidic solutions. A very dangerous fire hazard when exposed to heat, flame or oxidizing agents. May ignite or explode if heated with oxygen [Lewis].

Conditions to avoid

no data available

Incompatible materials

Strong oxidizers, acids.

Hazardous decomposition products

Disaster hazard: dangerous upon exposure to heat or flame ...

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male) - 2 257 mg/kg bw. Remarks: Results for fasted animals.

Inhalation: LC0 - rat (male) - > 15.8 mg/L air.

Dermal: LD50 - rabbit (male) - 3 930 mg/kg bw.

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 available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and respiratory tract. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause unconsciousness.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - *Lepomis macrochirus* - > 10 000 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 27 000 mg/L - 48 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 25 500 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks: Respiration rate.

Persistence and degradability

A reduction in BOD in 8 hr was obtained in one study in which well acclimated sewage seed was incubated with 333 ppm of methylal(1). However this reduction was small compared with the theoretical oxygen demand and toxicity resulted in an initial increase in BOD.

Bioaccumulative potential

The BCF for methylal, estimated from its octanol/water partition coefficient, 0.00(1), using a recommended regression equation is 0.6(2, SRC). Therefore, methylal should not bioconcentrate in fish and aquatic organisms.

Mobility in soil

The Koc for methylal estimated from its water solubility, 2.44×10^5 ppm(1), by a recommended regression equation is 5(2). Therefore methylal would be very mobile in soil(3).

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: UN1234 (For reference only, please check.)

IMDG: UN1234 (For reference only, please check.)

IATA: UN1234 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: METHYLAL (For reference only, please check.)

IMDG: METHYLAL (For reference only, please check.)

IATA: METHYLAL (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (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

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

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

An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert. Check for peroxides prior to distillation; eliminate if found. Methylal is metabolized to methanol and formaldehyde and may exhibit the same toxic reactions as these compounds. See ICSCs 0057 and 0275.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any