

Section 1. Product and Company Identification

Product Name Dimethoxymethane
CAS Number 109-87-5

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Section 2. Hazards Identification

Classification of the substance or mixture

Physical Hazards

Flammable liquids - Category 2

Health Hazards

Acute toxicity, oral - Category 4

Specific target organ toxicity, single exposure - Category 1 (optic nerve)

OSHA Defined Hazards

Not classified

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statement

Highly flammable liquid and vapor. Harmful if swallowed. Causes damage to organs (optic nerve).

Precautionary Statement

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat,



drink, or smoke when using this product. Wear protective gloves/eye protection/face protection.

Response

If swallowed: Call a poison center/doctor if you feel unwell. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed: Call a poison center/doctor.

Rinse mouth.

Storage

Store in a well-ventilated place. Keep cool. Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations

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

Section 3. Composition / Information on Ingredients

Common Name Dimethoxymethane
Synonym(s) Methylal
CAS Number 109-87-5

COMPONENT	CAS NUMBER	CONCENTRATION
Dimethoxymethane	109-87-5	> 92%
Methanol	67-56-1	< 8%

Section 4. First Aid Measures

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion: Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute, and delayed: Direct contact with eyes may cause temporary irritation. Harmful if swallowed. Causes damage to organs (optic nerve).

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information: Take off all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.



Section 5. Firefighting Measures

Suitable extinguishing media: Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Firefighting equipment/Instructions: In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards: Highly flammable liquid and vapor

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions: Avoid discharge into drains, water courses or onto the ground.

Section 7. Handling and Storage

Precautions for safe handling: Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when



handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities: Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

Section 8. Exposure Controls / Personal Protection

Occupational Exposure Limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Dimethoxymethane	PEL	3100 mg/m ³
Methanol	PEL	1000 ppm 260 mg/m ³ 200 ppm

US ACGIH Threshold Limit Values

Components	Type	Value
Dimethoxymethane	TWA	1000 ppm
Methanol	STEL	250 ppm
	TWA	200 ppm

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Dimethoxymethane	TWA	3100 mg/m ³
Methanol	STEL	1000 ppm
		325 mg/m ³
		250 ppm
	TWA	260 mg/m ³
		200 ppm

Biological Limit Values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Methanol	15 mg/L	Methanol	Urine	*

* For sampling details, please see the source document



Exposure Guidelines

US - California OELs: Skin designation

Methanol (CAS 67-56-1): Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Methanol (CAS 67-56-1): Skin designation applies

US - Tennessee OELs: Skin designation

Methanol (CAS 67-56-1): Can be absorbed through the skin

US ACGIH Threshold Limit Values: Skin designation

Methanol (CAS 67-56-1): Can be absorbed through the skin

US NIOSH: Pocket Guide to Chemical Hazards

Methanol (CAS 67-56-1): Can be absorbed through the skin

Appropriate engineering controls: Explosion-proof general and local exhaust ventilation. 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.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses; chemical goggles (if splashing is possible).

Skin protection

Hand protection: Wear appropriate chemical resistant gloves.

Other: Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection: Chemical respirator with organic vapor cartridge

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General Hygiene Considerations: When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Section 9. Physical and Chemical Properties

Physical State: Liquid

Form: Liquid

Color: Colorless

Odor: Ether

Odor Threshold: Not available

pH: Not available

Melting point/freezing point: Not available

Initial boiling point and boiling range: 107.6°F (42°C)

Flash point (Closed Cup): -0.4°F (-18.0°C)



Evaporation rate: Not available
Flammability (solid, gas): Not available
Upper/lower flammability or explosive limits
Flammability limit - lower: Not available.
Flammability limit - upper: Not available.
Explosive limit - lower: Not available.
Explosive limit - upper: Not available.

Vapor pressure: Not available.
Vapor density: Not available.
Relative density: 0.861 (25°C)
Solubility (in Water): 323 g/L
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: 307.4°F (153°C) (DSC)
Viscosity: Not available.

Section 10. Stability and Reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.

Incompatible materials: Acids. Strong oxidizing agents

Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological Information

Information on likely routes of exposure

Inhalation: May cause damage to organs by Inhalation.

Skin contact: No adverse effects due to skin contact are expected.

Eye contact: Direct contact with eyes may cause temporary irritation.

Ingestion: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics: Direct contact with eyes may cause temporary irritation. Harmful if swallowed. Causes damage to organs (optic nerve).

Information on toxicological effects

Acute Toxicity: Harmful if swallowed



Acute Toxicity - Methanol (CAS 67-56-1)

LC50 Inhalation - Rat: 22,500 ppm, 8 hours

LD50 Oral - Rat: 6200 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation: Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye Irritation: Direct contact with eyes may cause temporary irritation

Respiratory or Skin Sensitization

Respiratory Sensitization: Not a respiratory sensitizer.

Skin Sensitization: This product is not expected to cause skin sensitization.

Germ Cell Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure: Causes damage to organs (optic nerve).

Specific target organ toxicity - repeated exposure: Not classified

Aspiration hazard: Not an aspiration hazard

Chronic effects: Prolonged inhalation may be harmful.

Section 12. Ecological Information

Ecotoxicity: The product is 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.

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol/ water (log Kow)

Dimethoxymethane (CAS 109-87-5): 0

Methanol (CAS 67-56-1): -0.77

Mobility in Soil: This product is water soluble and may spread in the water system.

Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT

UN number: UN1234

UN proper shipping name: Methylal

Transport hazard class(es): Class 3

Subsidiary risk: Label(s) 3

Packing group: PG II

Environmental hazards

Marine pollutant: No

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Special provisions: 182, IPS, T7, TP2

Packaging exceptions: None

Packaging non bulk: 202

Packaging bulk: 242

IATA

UN number: UN1234

UN proper shipping name: Methylal

Transport hazard class(es): Class 3

Subsidiary risk: Label(s): 3

Packing group: PG II

Environmental hazards: No

ERG Code: 3H

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number: UN1234

UN proper shipping name: Methylal

Transport hazard class(es)

Class: 3

Subsidiary risk: -

Label(s): 3

Packing group: II



Environmental hazards

Marine Pollutant: No

EmS: F-E, S-D

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73n8 and the IBC Code: Not applicable.

Section 15. Regulatory Information

US federal regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt D): Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Dimethoxymethane (CAS 109-87-5): Listed

Methanol (CAS 67-56-1): Listed

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories

Immediate Hazard: Yes

Delayed Hazard: No

Fire Hazard: Yes

Pressure Hazard: No

Reactivity Hazard: No

SARA 302 Extremely hazardous substance: Not listed.

SARA 311/312 Hazardous Chemical: Yes

SARA 313 (TRI reporting)

Methanol (CAS 67-56-1): < 8% wt.

Other Federal Regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Methanol (CAS 67-56-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated.

Safe Drinking Water Act (SDWA): Not regulated.

US State Regulations

US Massachusetts RTK Substance List

Dimethoxymethane (CAS 109-87-5)

Methanol (CAS 67-56-1)



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

Dimethoxymethane (CAS 109-87-5)

Methanol (CAS 67-56-1)

US Pennsylvania Worker and Community Right-to-Know Law

Dimethoxymethane (CAS 109-87-5)

Methanol (CAS 67-56-1)

US Rhode Island RTK

Methanol (CAS 67-56-1)

US California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Formaldehyde (CAS 50-00-0)

Methanol (CAS 67-56-1)

International Inventories

Country(s) or region	Inventory	On inventory (Yes/No)
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

* A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

* A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).



NFPA Rating

Health: 2

Flammability: 3

Reactivity: 0

Section 16. Other Information

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.

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