# SAFETY DATA SHEET

**Creation Date** 09-Apr-2010 **Revision Date** 24-Dec-2021 **Revision Number** 5

## 1. Identification

**Product Name** **Dimethoxymethane**

**Cat No. :** **AC115560000; AC115560010; AC115560025; AC115560050; AC115560250**

**CAS No** 109-87-5
**Synonyms** Methylal; Formaldehyde dimethyl acetal; Formal

**Recommended Use** Laboratory chemicals.
**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
**CHEMTREC** Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

## 2. Hazard(s) identification

**Classification**
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Flammable liquids | Category 2 |

**Label Elements**

**Signal Word**
Danger

**Hazard Statements**
Highly flammable liquid and vapor

**Precautionary Statements**
**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
Wear protective gloves/protective clothing/eye protection/face protection
**Skin**
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
**Fire**
In case of fire: Use CO2, dry chemical, or foam for extinction
**Storage**
Store in a well-ventilated place. Keep cool
**Disposal**
Dispose of contents/container to an approved waste disposal plant
**Hazards not otherwise classified (HNOC)**
None identified

## 3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| Methylal | 109-87-5 | > 95 |

## 4. First-aid measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

**Inhalation** Remove from exposure, lie down. Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**Ingestion** Clean mouth with water. Get medical attention.

**Most important symptoms and effects** Difficulty in breathing. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Carbon dioxide ($CO_2$). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.

**Unsuitable Extinguishing Media** No information available

| | |
|---|---|
| **Flash Point** | -18 °C / -0.4 °F |
| **Method -** | No information available |
| **Autoignition Temperature** | 237 °C / 458.6 °F |

**Explosion Limits**

| | |
|---|---|
| **Upper** | 17.60% |
| **Lower** | 1.60% |
| **Sensitivity to Mechanical Impact** | No information available |
| **Sensitivity to Static Discharge** | No information available |

**Specific Hazards Arising from the Chemical**
Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

**Hazardous Combustion Products**
Carbon monoxide (CO). Carbon dioxide ($CO_2$). Formaldehyde.
**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

| Health | Flammability | Instability | Physical hazards |
|---|---|---|---|
| 2 | 3 | 0 | N/A |

## 6. Accidental release measures

| | |
|---|---|
| **Personal Precautions** | Remove all sources of ignition. Take precautionary measures against static discharges. |
| **Environmental Precautions** | See Section 12 for additional Ecological Information. |
| **Methods for Containment and Clean Up** | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not let this chemical enter the environment. |

## 7. Handling and storage

| | |
|---|---|
| **Handling** | Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Take precautionary measures against static discharges. Do not ingest. If swallowed then seek immediate medical assistance. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Contents may develop pressure upon prolonged storage. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. |
| **Storage.** | Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Protect from direct sunlight. Flammables area. Incompatible Materials. Acids. Peroxides. oxygen. Oxidizing agent. |

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|---|---|---|---|---|
| Methylal | TWA: 1000 ppm | (Vacated) TWA: 1000 ppm<br>(Vacated) TWA: 3100 mg/m³<br>TWA: 1000 ppm<br>TWA: 3100 mg/m³ | IDLH: 2200 ppm<br>TWA: 1000 ppm<br>TWA: 3100 mg/m³ | TWA: 1000 ppm |

*Legend*

*ACGIH - American Conference of Governmental Industrial Hygienists*
*OSHA - Occupational Safety and Health Administration*
*NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health*

**Engineering Measures** Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

| | |
|---|---|
| **Physical State** | Liquid |
| **Appearance** | Colorless |
| **Odor** | sweet |
| **Odor Threshold** | No information available |
| **pH** | No information available |
| **Melting Point/Range** | -105 °C / -157 °F |
| **Boiling Point/Range** | 41 - 42 °C / 105.8 - 107.6 °F @ 760 mmHg |
| **Flash Point** | -18 °C / -0.4 °F |
| **Evaporation Rate** | No information available |
| **Flammability (solid,gas)** | Not applicable |
| **Flammability or explosive limits** | |
| **Upper** | 17.60% |
| **Lower** | 1.60% |
| **Vapor Pressure** | No information available |
| **Vapor Density** | No information available |
| **Specific Gravity** | 0.860 |
| **Solubility** | Soluble in water |
| **Partition coefficient; n-octanol/water** | No data available |
| **Autoignition Temperature** | 237 °C / 458.6 °F |
| **Decomposition Temperature** | No information available |
| **Viscosity** | 3.25 mPa.s (20°C) |
| **Molecular Formula** | C3 H8 O2 |
| **Molecular Weight** | 76.09 |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Stable under normal conditions.

**Conditions to Avoid** Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products.

**Incompatible Materials** Acids, Peroxides, oxygen, Oxidizing agent

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide ($CO_2$), Formaldehyde

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Acute Toxicity**

**Product Information**

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Methylal | 6423 mg/kg (Rat) | >5000 mg/kg (Rabbit) | Not listed |

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|---|---|---|---|---|---|---|
| Methylal | 109-87-5 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects,both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| Methylal | Not listed | LC50: 1000 mg/L/96h | Not listed | EC50: 1200 mg/L/48h |

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its volatility.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

**DOT**

| | |
|---|---|
| **UN-No** | UN1234 |
| **Proper Shipping Name** | Methylal |
| **Hazard Class** | 3 |
| **Packing Group** | II |

**TDG**

| | |
|---|---|
| **UN-No** | UN1234 |
| **Proper Shipping Name** | METHYLAL |
| **Hazard Class** | 3 |
| **Packing Group** | II |

**IATA**

| | |
|---|---|
| **UN-No** | UN1234 |
| **Proper Shipping Name** | METHYLAL |
| **Hazard Class** | 3 |
| **Packing Group** | II |

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN1234 |
| **Proper Shipping Name** | METHYLAL |
| **Hazard Class** | 3 |
| **Packing Group** | II |

## 15. Regulatory information

**United States of America Inventory**

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|---|---|---|---|---|
| Methylal | 109-87-5 | X | ACTIVE | - |

**Legend:**
**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|
| Methylal | 109-87-5 | X | - | 203-714-2 | X | X | X | X | X | KE-11074 |

**KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**U.S. Federal Regulations**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration Not applicable

**CERCLA** Not applicable

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Methylal | X | X | X | - | X |

**U.S. Department of Transportation**

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**Authorisation/Restrictions according to EU REACH**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---|---|---|---|---|---|
| Methylal | 109-87-5 | Not applicable | Not applicable | Not applicable | Not applicable |

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---|---|---|---|---|---|
| Methylal | 109-87-5 | Not applicable | Not applicable | Not applicable | Not applicable |

## 16. Other information

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**Creation Date** 09-Apr-2010
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**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text**

# End of SDS